THE

PALESTINE EXPLORATION FUND.

NOTES AND NEWS.

AT a Meeting of the Committee held on December 30th, 1879, the following resolution was unanimously passed :—

"That a letter of condolence be written to Mrs. Hepworth Dixon, expressing the deep regret of the Committee at the distressingly sudden death of their late chairman, and their appreciation of the constant and persevering attention, the tact and ability which he devoted to the service of the Fund."

At the same meeting of the Committee a letter was read from Colonel Wilson stating that he found it impossible to carry on the editorship of the Memoirs at such a distance from England, and with the cares and duties of his office as Consul-General in Anatolia. The Committee accepted his resignation, and invited Mr. E. H. Palmer, Lord Almoner's Professor of Arabic and Fellow of St. John's College, Cambridge, the explorer of the Desert of the Exodus, to take his place. Professor Palmer has accepted the invitation, and the Memoirs will be now edited by him and Major Anderson, C.M.G., R.E.

At a meeting of the Committee, held on Jan. 6, 1880, Mr. James Glaisher, F.R.S., was elected Chairman.

The Great Map of Western Palestine, in twenty-six sheets, is now being coloured, nearly the whole having been delivered by the Director-General of the Ordnance Survey. The first issue to subscribers will probably be made about the middle of April.

The first volume of the Memoirs may be looked for in June. The following

volumes will be issued at intervals of about three months. Among the Memoirs will be included a report written specially for this work by Colonel Warren, of his excavations in Jerusalem, with illustrations, to which will be added a paper by Lieut. Conder, on the discoveries made in the city since his shafts were sunk.

Another edition, unnumbered, will be issued of the Memoirs on smaller paper. This will be published, with the map, when the special edition is in the hands of subscribers, at the price of twenty guineas.

A list of subscribers to the Great Map (without the Memoirs) has been commenced. Names may be sent to the Secretary. The maps will be sent out in order of entry. The subscription price is two guineas, carriage free. The sheets will be issued in a strong portfolio.

The prospectus of future work will be found in the report of the meeting of the General Committee. It is recommended that expeditions be sent out to excavate on the supposed sites of Capernaum, Chorazin, Bethsaida, &c.; and to examine the eastern shores of the Sea of Galilee; to make a geological report on the Dead Sea and the Jordan Valley; to survey the whole of Eastern Palestine; to excavate in search of special points in Jerusalem, and at various places in Western Palestine; to explore the cities of the Negeb or southern country; to explore the Lebanon and North Syria as far as the "entrance of Hamath;" and to explore Midian.

The Committee propose to carry out this programme by yearly expeditions which will cost from £1,000 to £1,500 each. The results will be published in their *Quarterly Statement.*

In the July number of the *Quarterly Statement* we shall give Professor Palmer's transcriptions of all the Arabic inscriptions in the Cubbet es Sakhrah, Masjed el Aksa, and Temple Area, with translations. These include the mosaics, inscriptions on the coloured glass windows, on the copper tablets over the doors, tablets, &c., recording the different restorations.

The collection contains also a number of *graffiti* in Hebrew and Kufic characters from "Solomon's Stables" and other places in the Haram Area.

The papers on the "Colonisation of Palestine" in this number are published by kind permission of the proprietors of the *Jewish Chronicle,* in which they have appeared from time to time during the last quarter. The subject is one in which many subscribers to the Fund are deeply interested.

A cheap edition of "Tent Work in Palestine" will be published in the

autumn. Its price will probably be seven shillings and sixpence. About fifty copies of the library edition still remain.

Lieut. H. H. Kitchener, R.E., formerly one of the officers in charge of the Survey, Vice-Consul in Asia Minor under Colonel Wilson, has been appointed Surveyor-General of Cyprus.

The income of the Fund from all sources, from December 22nd, 1879, to March 20th, 1880, was £648 4s. 11d. The general expenditure on rent, parcels, postage, printing, &c., during the same period has been £452 15s. 6d. The amount in hand at the Committee meeting of March 16th was £1,114 6s. 7d.

It will be seen by the Report of the Executive Committee that a visit of exploration among the Biblical sites of the Delta was proposed in the autumn by the Rev. Greville Chester. A letter has been received from him dated Feb. 19th, in which he states that he was about to commence his journey.

It is suggested to subscribers that the safest and the most convenient manner of paying subscriptions is through a bank. Many subscribers have adopted this suggestion. This method removes the danger of loss or miscarriage, and renders unnecessary the acknowledgment by official receipt and letter.

Subscribers who do not receive the *Quarterly Statement* regularly, are asked to send a note to the Secretary. Great care is taken to forward the periodical to all who are entitled to receive it, but changes of address and other causes give rise occasionally to omissions.

The publications of the Society now in print are :—

1. The Recovery of Jerusalem. Third Thousand. 16/- to Subscribers.
2. Our Work in Palestine. Ninth Thousand. 3/6.
3. Tent Work in Palestine. Second Thousand. 17/6 to Subscribers.
4. The *Quarterly Statement.*

The second of these contains a popular account of the excavations in Jerusalem, with the reasons and aims of the work.

A few copies still remain of Lieutenant Kitchener's Guinea book of Biblical Photographs. It contains twelve views, with a short account of each. The views are mounted on tinted boards, and handsomely bound.

Cases for binding the *Quarterly Statement* can be obtained of the Society's publishers, Messrs. R. Bentley and Son, at eighteenpence each. They are in green or brown cloth with the stamp of the Society.

The following are at present Representatives and Lecturers of the Society, in addition to the local Honorary Secretaries :—

Archdeaconry of Hereford: Rev. J. S. Stooke-Vaughan, Wellington Heath Vicarage, Ledbury.

City and neighbourhood of Manchester: Rev. W. F. Birch, St. Saviour's Rectory.

Lancashire: Rev. John Bone, St. Thomas's Vicarage, Lancaster.

London: Rev. Henry Geary, 16, Somerset Street, Portman Square.

Norwich: Rev. W. F. Creeny.

Suffolk: Rev. F. C. Long, Stow-upland, Stowmarket.

Peterborough: Rev. A. J. Foster, Farndish Rectory, Wellingborough.

Worcester: Rev. F. W. Holland, Evesham (Member of General and Executive Committee, and one of the Hon. Secretaries to the Fund).

Diocese of Ripon: Rev. T. C. Henley, Kirkby Malham Vicarage.

North Wales: Rev. John Jones, Pwllheli, North Wales.

Yorkshire, Durham, and the North: Rev. James King, St. Mary's Vicarage Berwick. Mr. King has recently returned from the Holy Land; communications for lectures, &c., can be sent to the Office at Charing Cross.

Scotland.—Rev. R. J. Craig, Dalgetty, Burntisland.

While desiring to give every publicity to proposed identifications and other theories advanced by officers of the Fund and contributors to the pages of the *Quarterly Statement*, the Committee beg it to be distinctly understood that these rest solely upon the credit of the respective authors, and that by publishing them in the *Quarterly Statement* the Committee neither sanction nor adopt them.

Annual subscribers are earnestly requested to forward their subscriptions for the current year when due, at their *earliest convenience*, and without waiting for application.

The Committee are always glad to receive old numbers of the *Quarterly Statement*, especially those which have been advertised as out of print.

MEETING OF GENERAL COMMITTEE.

A MEETING of the General Committee was held at the Offices of the Society on Tuesday, March 16th. Mr. JOHN MACGREGOR in the chair.

The following Report of the Executive Committee was read and adopted:—

"MY LORDS AND GENTLEMEN,—Your Committee, elected at the last General Meeting, held on June 24th, 1879, have, on resigning their trust, to render to you an account of their administration during the months.

1. The registration of the Society under the Companies Acts of 1862 and 1867 has been since that day completed.

2. This meeting is called in accordance with the rule in Article 21 of the Articles of Association.

3. The Financial Statement, presently to be read to you, with a list of the assets and property of the Society, has been already sent to every member of the General Committee.

4. The balance in hand this day is £1,114 6s. 7d.; of this sum £186 5s. is on deposit account, being the amount paid on account of the proposed Galilee Expedition; £340 is on deposit account, being set aside to meet part of the cost of the small map; £257 7s. is on deposit account, being the amount as yet paid up for the special edition of the memoirs and map.

5. The large map is already printed and is now being coloured. The portfolios are in preparation. It will be delivered to subscribers in the course of a few weeks.

6. The engraving of the small map is finished in outline; the hill shading is progressing. It is expected that this map will be ready about the end of the year.

7. The American reconnoissance map of Eastern Palestine, in thirteen sheets, has also been photo-zincographed under the superintendence of the Director-General of the Ordnance Survey, and is now ready for issue.

8. The first volume of Memoirs is printed and will be issued as soon as the engravings and illustrations are ready.

9. Colonel Wilson having resigned his post as one of the Editors of the Memoirs, the Committee have invited Professor Palmer to undertake the work in his place. The Committee are happy to report that he has accepted the invitation.

10. The Large Paper Edition of 250 copies has been entirely taken up. About twenty names have been added to the list on the chance of copies falling in.

11. The Committee have resolved on issuing, as soon as the Special Edition is in the hands of subscribers, another edition on smaller paper at twenty guineas a copy, including the large map in twenty-six sheets.

12. The Committee have accepted an offer made by Mr. Greville Chester to undertake a journey of exploration among the Biblical sites

of the Delta while in Egypt. This journey, the cost of which will be trifling, has probably been already completed.

13. The Committee have to regret the loss of their Chairman, by his sudden death on December 26th, 1879.

14. At a meeting specially called for December 30th, it was resolved that a letter of condolence should be written to Mrs. Dixon expressing the deep regret of the Committee at this lamentable event, and their appreciation of the constant and persevering attention, the tact and ability which Mr. Dixon devoted to the services of the Fund during the three years and a half of his chairmanship.

15. At a meeting held on January 6th, the Committee proceeded to elect a successor. Mr. James Glaisher, F.R.S., was unanimously invited to accept that post.

16. The Committee have to express their gratification at the appointment of Dr. Barclay, for many years an active member of the General Committee, to the Bishopric of Jerusalem.

17. As regards the present position of the Society and its future work, it seems well now, as at the meeting of the General Committee of 1878, to recall the attention of the Committee to the original prospectus of the Society. Under the head of Archæology, this prospectus said:—

"Beyond the Holy City the country is full of sites which cannot fail amply to repay examination. Of these a few only may be enumerated:—Mount Gerizim, possibly the Moriah of Abraham's sacrifice, certainly the Holy Place of the Samaritans, containing the stones which they allege to have been brought up by Israel from the bed of the Jordan—the Valley of Shechem, the earliest settlement of Jacob in the Holy Land, with his Well and the Tomb of Joseph—Samaria, with the traditional tombs of John the Baptist and others, and with the extensive remains of Herod's edifices—the splendid Roman cities along the coast, Cæsarea of Herod and St. Paul—Antipatris—the once-renowned harbours of Jamnia and Gaza—the mounds and other remains of Jiljilieh, probably the Gilgal which contained the Great College of Prophets in the days Elijah and Elisha—the Fortress and Palace of Herod at Jebel Fureidis—the Tombs (probably those of Joshua) at Tibneh—the mounds at Jericho—the numerous remains in the Valley of the Jordan—Bethshean, one of the most ancient cities of Palestine, with remarkable remains of Roman, and probably still earlier, date—Jezreel, the capital of Ahab and Jezebel—the Assyrian mound, called Tel es Salhiyeh, near Damascus," &c., &c.

The Survey of Western Palestine, now happily completed, affords a basis, then wanting, for carrying out these and many other points of examination. The map now in our hands will be our guide to further exploration and excavation. The special plans will suggest the best spots for work. Our increased knowledge of recovered and ascertained sites will prevent useless and tentative shafts. We not only know what to look for, but we now know where and how to look for it.

In the second section of the original prospectus, the Manners and Customs of the People, a good deal has been done by M. Clermont Ganneau, Lieut. Conder, Mr. Tyrwhitt Drake, and others.

In the third section, that of Topography, the Society has quite fulfilled its programme so far as Western Palestine is concerned. The Americans have executed a reconnoissance map of Eastern Palestine, but it has been found impossible to incorporate this map with our own exact survey. As a reconnoissance it adds considerably to our knowledge of the country, but it is only a preliminary, and not an accurate and exhaustive survey. Thus, while it has been issued separately, the Committee are advised that it cannot be reduced and engraved as part of their small map. What has been done for the west of the Jordan remains to be done for the east.

Of Geology and Natural Science almost the same words may be used as in 1865. Canon Tristram has undertaken a paper on this subject for the Memoirs of the Survey.

In 1878 the Committee recommended for the immediate work of the Society—

1. Publication of the Map.
2. Publication of the Memoirs.
3. Either an expedition to Galilee or one to the Dead Sea.

The publication of both Map and Memoirs is now fully provided for. It behoves the Committee, therefore, to proceed to their next work.

They recommend, as the best way of carrying out the objects of the Society, the dispatch of an exploring party every year, at a cost of about £1,000, each party to have definite instructions and special objects. Thus the following might be taken up:—

1. The Lake of Galilee, with excavations on the supposed site of Capernaum, Chorazin, Bethsaida, &c., and the eastern shores of the lake.
2. The Dead Sea and the Jordan Valley to be examined by a geologist.
3. The Survey of Eastern Palestine. The attention of the Committee has been specially drawn to this district. It is proposed that a pamphlet be drawn up on the subject, which shall set forth the desiderata and points of interest, Biblical and otherwise, in this hitherto unexplored and little-visited region.
4. Excavations in search of special points in Jerusalem. The return of Colonel Warren to England gives the Committee the benefit of his special advice as to Jerusalem.
5. Excavation and examination of some of the places mentioned in the original prospectus, such as Mount Gerizim, the Valley of Shechem, the Tomb of Joseph, Samaria, Cæsarea, Jamnia, Gaza, Jebel Fureidis, Tibneh, Bethshean, Jezreel, and some of the places discovered and planned by Lieuts. Conder and Kitchener.
6. The Negeb, or south country.
7. The Lebanon and North Syria.
8. Midian.

Lastly, the Committee have to acknowledge the services of those gentlemen who have acted as their honorary secretaries, and to express their best thanks for the trouble they have taken; the subscribers and donors of the Fund, who have had to wait in patience for the long-promised map, and to all who have aided them in their work."

The Financial Statement of the Executive Committee, as follows, was then read and adopted.

"The Palestine Exploration Fund having been incorporated by the Board of Trade for the purpose of being in a position to protect itself from piracy of its valuable copyrights, in accordance with the resolutions passed at the General Committee of June 24th, 1879; it becomes the duty of the Executive Committee to submit to the General Committee, in addition to the usual Statement of Receipts and Expenditure for the year 1879, a General Statement of the Assets and Liabilities of the Fund.

The Balance Sheet for the year ending Dec. 31st, 1879, will be found appended.

The subscriptions show some falling off, due mainly to the fact that the work of the year has been entirely office work. The expenditure of the year has been marked by the payment of all the outstanding debts. The printer's bill almost wholly covers the balance of unpaid accounts which appear on the balance sheet. The management expenses are £168 less than in the preceding year. The exploration expenses are limited this year to a few bills which had not been received in time to be paid last year, and to a grant made to Mr. Greville Chester in aid of a journey of exploration among the Biblical sites of Egypt.

The balance in hand at the end of the year was double that at the beginning.

The assets of the Society are as follows:

1. A valuable collection of ancient glass and pottery, including vases, lamps, etc., with inscriptions, casts, coins, and objects dug up during the excavations in Jerusalem, by Colonel Warren, R.E., and M. Clermont-Ganneau. The greater part of this collection is in the South Kensington Museum.

2. A large number of photographs. The negatives are with Messrs. Vincent Brooks and Co. The stock in hand for sale is with the agent, Mr. Edward Stanford.

3. The following copyrights:—

   1. Recovery of Jerusalem. In this work the Committee went on the system of half profits with Messrs. R. Bentley and Son.
   2. Our Work in Palestine.
   3. Tent Work in Palestine.

   These two books are the absolute property of the Committee; the latter being subject to a royalty paid to the author.

   4. The *Quarterly Statement*, now in its twelfth year.

4. The maps, memoirs, plans, paintings, drawings, name-lists, note-books, observations, &c., belonging to the Survey of Western Palestine, made by Lieuts. Conder and Kitchener, R.E.

5. The maps and memoirs belonging to the American Reconnaissance of Eastern Palestine.

6. The Reduced Map of Palestine, for travellers and general use, now being engraved for the Committee by Mr. Stanford, on the scale of three-eighths of an inch to the mile.

7. A very large collection of drawings and plans made by Colonels Wilson and Warren, Major Anderson, M. Clermont-Ganneau, M. Lecomte, Professor Palmer, Mr. Tyrwhitt Drake, &c.

8. Instruments, &c., used in the various operations of the Committee.

9. A collection of books belonging to the subject of Palestine Research.

It is impossible to estimate the value of these collections. If they were sold, the amount realised would depend entirely on the circumstances of the sale, and the amount of interest existing in the subject at the time. As regards the copyrights, that in the maps will certainly produce a steady revenue, but it is impossible to calculate, even approximately, what will be its amount. As to the value of the books, the returns for the last eleven years show an average income of £90 from this source.

10. The office furniture, which with frames, photographs, cabinets, diagrams for lectures, &c., may be valued at about £100.

BALANCE SHEET, 1879.

Dec. 31, 1879.	£	s.	d.
Subscriptions	1869	3	9
Lecture Account	16	6	4
Subscriptions to Special Edition of the Survey	185	17	0
Publications	74	0	4
Photographs, with Balance of Cost of Stock in Hand	47	8	5
Unpaid Accounts	249	13	11
	£2,442	9	9

Jan. 1, 1879.	£	s.	d.	£	s.	d.
Unpaid Accounts	855	5	10			
Less Balance in Hand at same date	416	10	1			
				438	15	9
Dec. 31, 1879.						
Exploration				64	17	2
Rent, Salaries, Wages, Office Stationery, Advertising				649	1	5
Printing and Lithography				291	13	2
Postage and Carriage of Parcels				104	12	2
				£1,548	19	8
Balance				893	10	1
				£2,442	9	9

(*Signed*) W. Morrison, *Treasurer.*

The following resolutions were then proposed and carried:—

1. "That the following gentlemen be elected for the Executive Committee of the Society:—

Major ANDERSON, C.M.G., R.E.
J. D. CRACE, Esq.
F. A. EATON, Esq.
JAMES GLAISHER, Esq., F.R.S.
GEORGE GROVE, Esq., D.C.L.
SAMUEL GURNEY, Esq.
Rev. F. W. HOLLAND.
Professor HAYTER LEWIS.
JOHN MACGREGOR, Esq.
WALTER MORRISON, Esq.
WILLIAM SIMPSON, Esq.
Rev. CANON TRISTRAM, F.R.S.
W. S. W. VAUX, Esq., F.R S.
Lieut.-Col. WARREN, C.M.G., R.E."

2. "That the Archbishop of York be the President of the Society; that Walter Morrison, Esq., be the Treasurer of the Society; that George Grove, Esq., and the Reverend Frederick Whitmore Holland be the Honorary Secretaries."

3. "That the Executive Committee shall have power to fill up vacancies or elect additional members of its body by co-optation, not less than seven nor more than fourteen days' notice having been given to each member of the said Committee of the name or names of the person or persons proposed to be so added, provided always that the number of the Executive Committee shall not exceed sixteen."

4. "That the Executive Committee shall have power to accept the resignation of any member or members of the General or of the Executive Committees."

5. "That the Executive Committee have power to fill up vacancies in, or to elect new members to, the General Committee to a number not exceeding five."

The Chairman then stated that it had been the intention of the Treasurer to propose the election of Mr. Edward Atkinson, of Leeds, as a member of the General Committee. As Mr. Morrison was unavoidably absent from the meeting, the Chairman would himself propose Mr. Atkinson. He stated that during the existence of the Society this gentleman, their Honorary Secretary at Leeds, had raised for them the sum of nearly £600.

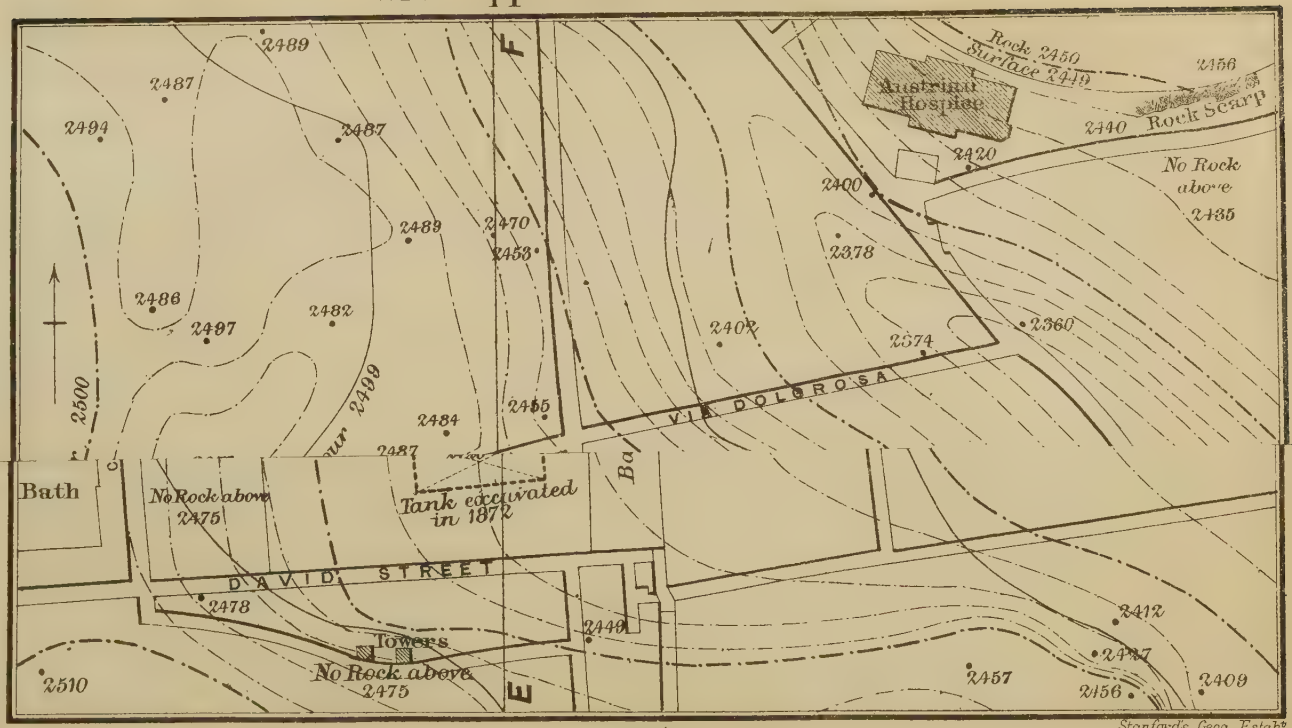
Mr. Glaisher seconded the proposal, and it was carried unanimously, the Secretary being instructed at the same time to convey the thanks of the Committee to Mr. Atkinson and Col. Cooke.

Mr. Glaisher then proposed that a vote of thanks be passed to Colonel Cooke, the Director-General of the Ordnance Survey, who was present at the meeting, for the kind assistance rendered to the Society by him and his Department. This was seconded by Mr. Henry Maudslay, and carried unanimously.

After a vote of thanks to the Chairman, the Committee adjourned until their next regular meeting in June.

PLAN OF PART OF JERUSALEM

With approximate Rock Contours.



Scale $\frac{1}{2500}$

Stanford's Geog Estab?

THE TYROPŒON VALLEY.

THE accompanying plan, embracing part of the city of Jerusalem, between Christian Street on the west and Valley Street on the east, and between the slope of Sion south of David Street on the south and the Via Dolorosa on the north, has been constructed with a view of showing how the observations of the levels of the rock beneath the surface may be used for the purpose of obtaining general results serving to elucidate he ancient topography of the city.

The plan includes 56 actual observations of the rock, and is fairly representative of the kind of information obtained throughout Jerusalem, as the known points in other parts are, if anything, more numerous in comparison with the area –excepting always the ground immediately west of the Haram, where few measurements have been made—as appears on the plan published in the last *Quarterly Statement.*

The area in the present plan has, however, been selected because the accumulation of *débris* in this part of the city is greater than in almost any other part within the modern walls; and for this reason the observations of the rock have here given results of more importance than in other quarters of Jerusalem. By glancing the eye along the surface contour No. 2449, and then along the rock contour No. 2450, and observing the wide divergence between them, it is at once evident that a great alteration has taken place in the outline of the ground.

The only method by which general results can be obtained from isolated observations of level is by the use of contours, or lines of equal level, the tracing of which indicates the relative positions of the features of the ground. By this method Colonel Wilson has delineated the supposed outline of the present surface beneath the houses of the modern city; and Colonel Warren has employed the same principle in his plan of rock surface in the Haram Area. In the case of the present surface the number of observations is of course considerably larger than it has been as yet possible to obtain by soundings of the rock, taken in deep excavations, or under the foundations of houses, or in cistern mouths. The surface contours are consequently more accurately traced, but all contours are by nature merely approximations to actual surfaces, answering to the lines which in section may be drawn to indicate the supposed lie of the rock between known points.

It is not, however, on the known levels of the rock alone that the contours depend in the case of the present plan. They are controlled by two other considerations. In the first place by the surface levels and contours, for it is evident that the rock level must never be higher than the surface contour, except in cases where the rock is visible above the general surface. In the second place, the level of the floor of various vaults and cellars being known, it is practically almost certain that the rock in their vicinity does not occur at a level higher than that of these floors. These negative observations are often very useful in determining

the *superior* limit for the rock level, though they do not of course give an *inferior* limit.

In order more clearly to show the manner in which the contours may be traced, it may be useful to follow one line across the plan. The contour 2,450 feet above the sea may be taken as a good specimen, and is, in fact, the master contour of Jerusalem, running through the heart of the city from the north-east to the south-west angle.

This contour first appears on the present plan in the north-east corner, where a vertical scarp 20 feet high runs parallel to the Via Dolorosa on the north side of the street. Behind the Austrian Hospice there is a steep slope (from which we may fairly suppose the rock to be close to the surface), and the surface contour 2449 limits the deviation of our rock line on the south; all the ground farther south being here not more than 2,339 feet above the sea. On the north an observation occurs about 200 feet from the rock contour at a level 2477, thus confining the contour 2450 within a limit of about 70 feet north and south. As, however, the surface slope is much gentler to the north, the limit of deviation is probably in reality less.

The rock contour 2450 reappears on the west side of the valley which runs down south-east from the Damascus Gate, the bed of which has an accumulation of some 40 feet of *débris* above it. We have here three observations in a line east and west, showing an even fall of the rock of 36 feet in 150 feet. The farthest east of the three observations has a level 2453, thus limiting the position of our contour on the west, while on the east the surface contour 2449 occurs at a distance about 100 feet from our rock line, and an observation (2402) of the rock is obtained 10 yards east again.

These data practically limit the deviation of the rock contour 2450 at this point within about 20 feet east or west, and its direction southwards is controlled between the surface contour on the east and the observations (2455 and 2454) near the Via Dolorosa on the west.

Proceeding southwards to the street called *'Akabet et Takîyeh* (the next parallel to the Via Dolorosa) we find that the surface contour 2449 curves outwards to the east, and that an observation (2444) west of *et Takîyeh* shows rock above the ground. The rock contour therefore cannot here be far away from the surface contour, and its approximate direction is obtained by joining the point 2444 with the point 2477 at the top of the above-mentioned street, where also the rock is visible on the surface for a short distance; by dividing this distance of 350 feet proportionally (in the ratio 27 to 33) we obtain the point through which the contour should pass.

The next observation, in the street south of the last, agrees with the preceding determination. The rock contour is here confined between the observation 2457 on the west and the surface contour 2449 on the east—an extreme limit of 100 feet; and on the supposition of an uniform slope the limit of deviation is not greater than about 30 feet at most.

Within 50 yards of the last point the line of the contour, which here begins to deviate considerably from that of the surface contour, is fixed within a limit of about 20 feet—passing between two observations of the rock, 2470 on the north, and 2440 on the south, at a distance apart of about 100 feet. A section of the hillside, extending over a length of 200 feet, is here obtained by aid of the observed lie of the rock in a great cistern discovered in 1876, showing a uniform slope of about 1 in 5, and defining in a satisfactory manner the northern bank of the great valley now hidden beneath 50 feet of rubbish.

The rock contour 2450 now enters the area of the *Muristân* (the old Hospital of St. John), the surface of which, before the excavations undertaken by order of the German Government had been commenced, was an open field at a level about 2480 feet above the sea. The first observation (2438) gives the level of the rock under the south wall of the Church of St. Marie la Grande, where a rock-cut tomb (of Crusading date) was found in 1872. The next (2462), about 100 yards farther west, shows rock 15 feet below the surface. In connection with these we must take the observations close to the Holy Sepulchre Church, where, in the vaults of the southern courtyard, the rock is found 15 feet from the surface (2458). Under the belfry (2473) it is only 7 feet from the surface, and in Mount Calvary it is about 10 feet above the floor of the church (2490). From these and the other neighbouring observations it is clear that the church stands on the hilltop, and that the ground falls rapidly south of it. The contour which we are tracing therefore runs between the Holy Sepulchre Church and the south wall of St. Marie la Grande; and on the supposition of a uniform slope its position is limited to narrow bounds, as the slope is about 1 in 4.

It now becomes evident that the contour must again turn south, as there is an observation near the south-west angle of the Muristân of 2478, while all the observations farther west are at yet higher levels. The ancient Byzantine Chapel discovered in 1840 at the corner of Christian Street and David Street, has its floor 25 feet beneath the surface, and the level of the rock seems thus to be about 2470 in this place. On the east our contour is limited by the level of the rock in the magnificent tanks excavated in 1872-3, where the bed of the valley was laid bare to the rock at a depth of 50 feet below the surface The rock was here found to be stepped down eastwards with a gentle fall, the mean level of the part measured being 2429.

Crossing David Street we obtain further indication of the rock levels. The two ancient towers, which are now built into the cistern of the Jewish Mission School, have their bases about 35 feet below the street. East of Dr. Chaplin's house there are also vaults below the street level, and at this point Colonel Warren obtained an observation (2449) at a depth of 34 feet beneath the surface, under the so-called Gennath Gate. The ground at the present day falls northwards from Dr. Chaplin's house to David Street at a slope of about 1 in 14; but the fall of the rock

from the so-called Gennath Gate to the great cistern in the Muristân is at a slope of 1 in 10.

Following our contour eastwards from the last point (2449) we find it controlled by another level (2457), where the thickness of *débris* is only 12 feet. The last point is 400 feet from the preceding, and between them the line is not well defined; but immediately east of the point 2457 we find the contour line almost absolutely fixed, the surface contour again approaching it, while four observations, at levels differing by nearly 50 feet, occur so close together as to give evidence of the existence of a precipitous slope or rocky scarp, which runs southwards until it becomes visible as a cliff some 20 feet high, facing the Haram opposite the south-west angle.

From the detailed account of this important contour the reader will be able to judge the manner in which the other lines of level have been traced. The general results may, however, be perhaps more clearly explained by means of sections of the ground. Three sections are accordingly given, one through the hill spur (east and west), a second along the valley bed (east and west), and a third across the valley and hill (north and south).

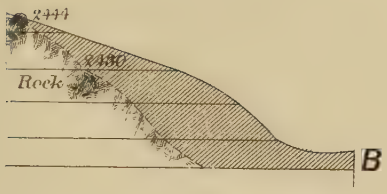
From these it will be evident that there is only a very small accumulation of *débris* on the hilltop, while the valley bed has been filled up nearly to a level with the higher ground, or to a depth of 50 feet in the middle.

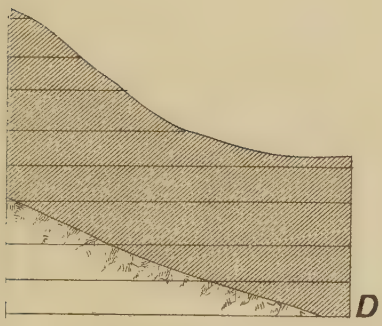
The surface outline in these sections is traced in accordance with the contours given on the Ordnance Survey; and, with regard to the rock outline, it should be noted that the line depends not only on the points marked *Rock*, where obversations occur on the cutting line, but also on other intermediate observations near the cutting line, and thus on the rock contours of the plan.

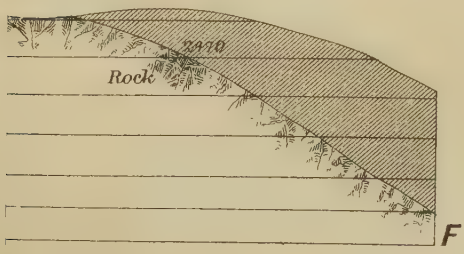
Before the year 1872 scarcely anything definite was known with regard to the lie of the rock in the great valley delineated on the present plan. Colonel Warren excavated in the Muristân to a depth of 40 feet without finding rock. The contours show that it existed at probably 4 or 5 feet on the average beneath his trench. The small plan which he constructed (see "Recovery of Jerusalem," p. 303) shows the contour 2450 running approximately as it is now traced, but the great breadth of the valley was not as yet fully appreciated.

In 1872 the great cistern in the south-east portion of the Muristân was excavated, and the bed of the valley laid bare. In 1876 the discovery of another tank north-east of the Bazaars gave a valuable confirmation to the correctness of the contour lines previously traced; and although further observations would be of great interest, the main fact of the existence of a valley some 100 feet deep and 800 feet wide (north and south) may now be considered definitely proved.

It is interesting to compare our present information with the discussions of earlier writers by whom it would have been considered invaluable. In 1838 Dr. Robinson described the Tyropœon Valley as


2444
2430
Rock
B


D


2440
Rock
F

commencing near the Jaffa Gate, and pointed out the fact that there was a descent northwards to David Street from the so-called Mount Sion ("Bib. Res." ii. 264). In 1849 Canon Williams writes: "I never could find any traces of the valley Dr. Robinson calls the Tyropœon" ("Holy City," ii. 29). In answer to this Dr. Robinson was only able to point out the level of the old chapel of St. John 25 feet below the street ("Later Bib. Res." p. 185).

The earliest attempt to restore on the ground the city of Jerusalem as described by Josephus, is that of Brocardus, who, writing in 1283 A.D., says of the valley under consideration: "The ravine is now itself quite filled up, but nevertheless shows signs of its former concavity." Brocardus had visited Jerusalem, and possibly was aware of the existence of the great tanks subsequently filled up. His description at all events now proves to be absolutely correct.

By denying the existence of this valley it became possible for the apologists of the traditional site of the Holy Sepulchre so to draw the line of the second wall as to pass entirely clear of the church on the east. It can hardly be now supposed that the city wall can have crossed the bed of so deep and wide a valley, leaving ground at an elevation 80 feet higher and only 100 yards to the west, on the outside. The determination of the contour of the valley thus forces us to remove the line of the second wall farther west, where a saddle of higher ground forms the head of the great valley.

The tracing of the rock also throws light on the description which Josephus gives of the ancient city, which was rendered obscure by reason of the filling up of the valley.

Josephus (5 Wars, iv. 1) speaks of the Tyropœon Valley as dividing the hill Akra from that of the Upper City, and describes Akra (which was separated from the Temple Hill by another valley) as being "gibbous" in shape (*αμφάϊκυρτος*), or like the moon in the fourth quarter. Nearly all authorities agree in placing Akra near the present Church of the Holy Sepulchre, and the gibbous shape of the spur on which that church stands is rendered conspicuous by the rock contours, but is not apparent from the surface contours. It will also be observed that a flat terrace is here formed with a steep slope on both the east and west (see Sect. A. B.), and it seems possible that this marks the artificial levelling of the Akra hill by the Hasmoneans, as twice described by Josephus.

The amount which would have been cut off supposing the original slope to have been uniform, is about 30 feet on the average, and if, as seems not improbable, there was here originally a knoll of higher ground, the amount cut down would have been yet greater.

The rock contours have been traced all over Jerusalem (as shown in the small plan published in "Tent Work in Palestine"), but with exception of the Haram Area there is no part of the city where the results of a study of the original surface appear to be so interesting and instructive. C. R. C.

REGISTER OF ROCK LEVELS, JERUSALEM.

Remarks.

1. This register includes all the recorded observations up to the present date—total 265. Those marked (O), 22 in all, are taken from the Ordnance Survey Notes and Plan, dating 1864-5. Those marked (W), 76 in number, were taken by Captain Warren in 1867-70, as noticed in the "Recovery of Jerusalem." Those marked (S), 139 in all, were collected by Herr Conrad Schick, in 1872. They are mainly the results of excavations for the foundations of houses. Those marked (C), 27 in all, were observed by Lieut. Conder in 1872-5.

2. The levels depend on, and are referred to, the surface levels marked on the Ordnance Survey.

3. Negative results of value have also been obtained, as noticed in the works above mentioned. In 1872 all the chambers under the platform of the Dome of the Rock on the south and west were entered by Lieut. Conder. No rock was found in them, the general floor-levels being 2420 feet above the Mediterranean.

No.	Position.	Level above the Mediterranean.	Depth below surf. of ground.	Authority.	Remarks.
	INTERIOR OF HARAM.				
1	Highest crest of *Sakhrah* ...	2440	...	O	5ft. 3in. above floor.
2	Dome of the Rock 100 ft. E. of last	2432	3	C	Excavated, 1874.
3	*Kubbet el Arwâh*	2435	...	C	Surface.
4	E. wall of platform 180 ft. N. of steps	2421	...	C	1ft. above base of wall.
5	E. wall of platform 80 ft. N. of last	2423	...	C	4ft. above base of wall.
6	Flat rock 50 ft. E. of last ...	2419	...	O	Surface.
7	Flat rock 120 ft. S. of S.E. corner of platform ...	2420	...	O	Surface.
8	N. wall of platform 50 ft. E. of top of N.W. stairs ...	2432	...	C	2ft. above surface.
9	Flat rock N. of N.W. stairs...	2430	...	O	Surface.
10	Top of rock scarp, E. wall of chamber No. 24	2433	2	C	Examined, 1872.
11	Bottom of ditto (rock falling W. 30°)	2425	9	W	Recov. Jer., p. 214.
12	*Kubbet el Khudr* floor ...	2426	...	C	Surface.
13	E. side of N. door of last ...	2428	...	C	2ft. above surface.
14	N.W. corner outside same ...	2425	...	C	Surface.
15	Flat rock N.W. corner of Haram	2425	...	O	Mean surface.

No.	Position.	Level above the Mediterranean.	Depth below surf. of ground.	Authority.	Remarks.
16	Highest point (at steps) of scarp in N.W. corner of Haram	2462	...	S	30ft. above interior.
17	E. end of same scarp ...	2432·5	...	S	13½ft. above interior.
18	Scarp on W. Haram wall, highest point 80 ft. N. of *Bâb es Serai*	2447	...	S	7ft. above interior.
19	S. face of same scarp at window in Haram wall S. of last	2434	...	C	3ft. aboveinterior(1873)
20	Under-sill of Triple Gate ...	2378	1	W	Recov. Jer., p. 230.
21	W. wall of passage 60 ft. N. of outside line of Triple Gate	2388	...	W	Surface of floor.
22	W. wall 130 ft. N. of last ...	2396	...	W	3ft. above floor.
23	Cistern No. 1...	2427	12	W	Recov. Jer., pp. 206-217
24	,, No. 2...	2429	6	W	
25	,, No. 3...	2426	9	W	
26	,, No. 4...	2417	18	W	
27	,, No. 5, N.W. end ...	2425	10	W	
28	,, ,, S.E. entrance	2408	8	W	
29	,, No. 6...	2410·5	5·5	W	
30	,, No. 7, average ...	2411	5	W	
31	,, No. 8, average ...	2411	5	W	
32	,, No. 9...	2400	15	W	Doubtful, p. 208.
33	,, No. 10	2387	31	W	
34	,, No. 11	2397	19	W	
35	,, No. 12	2406	...	W	Surface.
36	,, No. 13	2409	...	W	Surface.
37	,, No. 14	2409	...	W	Surface.
38	,, No. 15	2393	15	W	
39	,, No. 18	2414	4	W	
40	,, No. 22	2416	4	W	
41	,, No. 23	2429	...	W	Surface.
42	,, No. 25	2416	20	W	
43	,, No. 28	2412	3	W	
44	,, No. 29, top of scarp...	2419	10	W	
45	,, No. 31	...	...	...	Doubtful.
46	,, No. 34	2431	4	W	
47	,, No. 35	2429	6	S	
48	,, No. 36	2411	5	C	
	OUTSIDE HARAM WALLS.				
49	W. Haram wall at Wilson's Arch	2339·75	82·25	W	Recov. Jer., p. 81.
50	West pier (42 ft. W. of last)...	2347·25	75	W	
51	W. Haram wall, Tyropœon bridge	2325	62	W	,, p. 104
52	Prophets gate 14 ft. W. of wall	2320	90	W	,, p. 114.
53	,, 7 ft. N. of N. jamb	2320	74	W	,, p. 115.
54	*Hammâm es Shefa*, S. end ...	2339	80	O	
55	Rock surface at S. end of Aqueduct from Twin Pools (channel 2406 at bottom)...	2409	22	C	Measured 1873.

No.	Position.	Level above the Mediterranean.	Depth below surf. of ground.	Authority.	Remarks.
56	S. Haram wall 90 ft. E. of S.W. angle	2289	85	W	Recov. Jer. p. 97.
57	S. Haram wall 213 ft. E. of S.W. angle	2322	52	W	
58	S. Haram wall 14 ft. S. of Single Gate	2334	35	W	,, p. 132.
59	S. Haram wall, S.E. angle, falls E. 1 in 9	2277	80	W	
60	S. Haram wall 16 ft. W. of last	2287	73	W	,, p. 138.
61	E. Haram wall 15 ft. N. of S.E. corner...	2287·5	70	W	,, p. 149.
62	E. Haram wall 18 ft. N. of S.E. corner...	2298·8	60	W	
63	E. Haram wall 41 ft. N. of S.E. corner...	2279	80	W	,, p. 147.
64	E. Haram wall 162 ft. N. of S.E. corner...	2312	70	W	,, p. 151.
65	Golden gate S. jamb	2360	33	W	,, p. 97. Estimated.
66	N.E. tower of Haram S. side	2293·2	112	W	Recov. Jer. p. 183.
67	,, ,, 200 ft. E.	2317	30	W	,, p. 176.
68	,, ,, 135 ft. ...	2317	47	W	Falls S. 1 in 4.
69	N.E. angle of Haram 100 ft. E. of wall	2341	64	W	Recov. Jer. p. 178. A little N. of next.
70	N.E. angle of Haram 97 ft. due E. of wall	2337	59	W	Recov. Jer. p. 180.
71	E. wall of Haram 18 ft. S. of N.E. angle...	2330	74	W	,, p. 181.
72	Outlet of *Birket Isrâil* ...	2344	60	W	Estimated.
73	72½ ft. S. of No. 66	2282	120	W	
74	45 ft. ,, ,, ...	2289	115	W	
75	61 ft. ,, ,, (rising N.)	2278	125	W	Greatest depth, p. 187
76	104 ft. ,, ,, (rising S.)	2289	115	W	

MOSLEM QUARTER OF CITY.

77	256 ft. E. of *Bâb Sitti Miriam*	2370	21	W	Recov. Jer., pp. 174-177
78	162 ft. ,, (scarp 20 ft. high)	2379	30	W	Top of scarp.
79	109 ft. ,, (rising W. in steps)	2388	23	W	
80	43 ft. N. of ,,	2400	19	W	
81	34 ft. S. of ,,	2390	20	W	
82	78 ft. ,, ,,	2377	33·5	W	
83	Outside Ch. of St. Anne ...	2410	...	W	Surface, p. 193.
84	N.W. corner of *Birket Isrâil*	2363	15	W	p. 189.
85	53 ft. E. of last	2344	30	W	
86	Cistern 33 ft. W. of *Tarîk Bâb Hitta*, 61 ft. N. of *Tarîk Bâb Sitti Miriam*	2385	36	W	p. 195.
87	Top of *'Akabeh et Takiyeh* ...	2477	...	C	Above surface.
88	Ecce Homo arch	2436	9	O	

No.	Position.	Level above the Mediterranean.	Depth below surf. of ground.	Authority.	Remarks.
89	W. of St. *el Wad* at Catholic Armenian Monastery ...	2378	40	W	Scarped on W. and N. Recov. Jer., p. 281.
90	Scarp over Cotton Grotto ...	2524	...	O	Average.
91	400 ft. W. of *Bâb ez Zahrah*	2520	...	O	,,
92	N.E. corner of city highest point of scarp	2474	. .	O	Base of city wall.
93	E. side of *Tarîk Bâb el 'Amûd* 60 ft. N. of *'Akabet Sh. S'ad*	2420	35	S	
94	W. end of Arch in alley E. of N. end of *Sûk el 'Attarîn* close to B. M. 2472·5 ...	2470	...	S	Surface.
95	At arch E. of last	2457	10	S	
96	N. end of vault S.W. of last	2440	30	S	Discovered 1876.
97	S. ,, 120 ft. S. of last	2420	50	S	,, ,,
98	N. side of street 180 ft. E. of last	2400	45	S	Surface marked 2445 on O.S.
99	N.E. of arch 60 ft. S. of last	2400	45	S	
100	Corner of *Sûk el Kattanîn* and *el Wâd*	2390	10	S	
101	80 ft. N. of *Bâb el Hâdid* in N.W. corner of court ...	2365	35	S	
102	100 ft. S. of *et Takîyeh* ...	2430	7	S	
103	W. of last, S.W. of *et Takîyeh*	2444	5	S	
104	"House of Dives" point 2412 O.S....	2360	52	S	
105	W. of last 130 ft., N. side of Via Dolorosa	2374	50	S	
106	S. of B.M. 2420·6, 17ft. W. of No. 89	2400	17½	W	Recov. Jer., p. 281.
107	Opposite French Consulate on E.	2402	45	S	Foundation.
108	N. side Via Dolorosa under wall of Austrian Hospice opposite Armenian Catholic Monastery	2420	5	S	
109	W. end of scarp N. of Via Dolorosa	2440	5	C	Measured, 1874.
110	E. end of same scarp in chapel of Sisters of Sion	2456	...	S	The scarp is about 20ft. high (see No. 88).
111	Scarp at N. end of Twin Pools	2454	10	S	Scarp 37ft. high.
112	,, S. ,, ,,	2458	...	S	Surface of Barracks.
113	Rock bottom of Twin Pools on S.	2400	48	S	The S. scarp is 58ft. high
114	Rock bottom of Twin Pools on N.	2417	50	S	W. side of pool rock, 2410 to 2420.
115	Arch in *Tarîk Bâb ez Zahrah*, N. of B.M., 2479·1 ...	2474	12	S	
116	Second arch, 100ft. N. of last	2489	...	S	Surface.
117	*Tarîk Sh. Rihân* E. of English Consulate, opposite B.M., 2489·6	2477	12	S	

No.	Position.	Level above the Mediterranean.	Depth below surf. of ground.	Authority.	Remarks.
118	Corner of same street, 50 ft. E. of B.M., 2442·1 ...	2400	40	S	
119	150 ft. N. of B.M. 2462, which is opposite Austrian Consulate	2471	7	S	
120	E. side of street N. of *el Malawiyeh*	2503	3	S	
121	N. of last 50 ft. S. of B.M. 2525·2	2504	2	S	
122	100 ft. W. of B.M. 2525·2 at 2502	2503	...	S	1ft. above surface.
123	N. side of *Hârat Bâb Hitta* 80 ft. W. of B.M. 2501·6...	2496	8	S	
124	Alley N. of last, W. of point 2508	2498	10	S	
125	In garden 200 ft. N. of last...	2522	...	S	Surface.
126	N. side of *Hârat Bâb Hitta* 150 ft. E. of *Tarîk Bâb ez Zahrah*	2497	6	S	420ft. S. of N. city wall.
127	Corner of *Sikket Deir el 'Adas* 100 ft. S. of Madeleine Church	2474	6	S	
128	Same street, corner N. of Madeleine Church, near point 2483	2487	...	S	4ft. above surface.
129	Opposite B.M. 2450·9 at 250 ft. S. of, and 500 ft. W. of city walls	2446	5	S	
130	At 80 ft. S. of B.M. 2468·4 and 180 ft. W. of city wall	2440	20	S	
131	*'Akabet Abu Waly* near point 2441	2399	35	S	
132	At 50 ft. E. of arch in *Sikket Deir el 'Adas* in buildings between *'Akabet Abu Waly* and *'Akabet Sh. Hasan* ...	2457	6	S	
	JEWISH QUARTER OF CITY.				
133	Surface of scarp opposite Haram	2430	...	O	General level.
134	At W. pier Tyropœon Bridge 41½ ft. W. of Haram wall	2345·5	42	W	Recov. Jer., pp.95—99.
135	285 ft. W. of Haram wall same line as last	2379·5	21	W	
136	250 ,, ,, ,,	2388·6	18	W	
137	216 ,, ,, ,,	2377·5	32	W	
138	182 ,, ,, ,,	2383·5	22	W	
139	132 ,, ,, ,,	2369	30	W	
140	92 ,, ,, ,,	2354·5	40	W	
141	Corner 180 ft. N. of W. wall of German Jewish Hospital	2451	45	S	
142	N. wall, same hospice ...	2436	10	S	
143	*Hârat el Mastah*, S. end, W. side of street	2454	36	S	
144	Same street, 60 ft. N. of last	2452	38	S	

No.	Position.	Level above the Mediterranean	Depth below surf. of ground.	Authority.	Remarks.
145	Corner, 90 ft. S. of N. wall of synagogue, No. 53 (O.S.)...	2460	36	S	
146	80 ft. W. of last	2455	44	S	
147	Under synagogue No. 58 (O.S.)	2497	2	S	
148	N. of last by point 2508 on E. side *Hârat el Jawâny*...	2480	25	S	
149	Under large synagogue, No. 57 (O.S.)	2476	17	S	
150	W. of arch in *Hârat el Yehûd*, near synagogue, No. 47, (O.S.)	2468	30	S	
151	*Hosh Nammer*, middle of street on N. side	2472	30	S	
152	In alley S.W. of Caraite Synagogue, near point 2497 ...	2477	20	S	
153	Synagogue No. 48 (O.S.), S.E. corner	2464	34	S	
154	Synagogue No. 48 (O.S.) N.E. corner	2465	30	S	
155	Synagogue No. 48 (O.S.) N.W. corner	2475	25	S	
156	Steps in *Hârat el Meidân*, S. of northern arch	2412	35	S	
157	Corner S. of last	2427	32	S	
158	150ft. W. of last, near No. 6 (O.S.)	2457	12	S	
159	*Hârat el Meidân*, E. side, N. end of third arch from Temple street	2456	3	S	
160	At 70ft. E. of last	2409	40	S	
161	Wall west of Wailing place...	2323	70	S	
162	Gennath Gate (so-called) ...	2449	34	W	Recov. Jer., p. 276.

ARMENIAN QUARTER.

163	N.W. angle Protestant Bishop's Palace	2500	40	S	
164	E. wall do.	2510	30	S	
165	N.E. angle Bible warehouse	2520	20	S	
166	W. wall English church ...	2512	38	S	
167	N.W. angle do.	2509	41	S	
168	S.W. corner courtyard, do....	2521	22	S	
169	N.W. corner of school, S. of church	2515	28	S	
170	S.W. do.	2536	10	S	
171	Cistern in barracks S. of castle	2537	7	S	
172	David-st. S. side, E. end of arch E of Christian-st. ...	2478	40	S	
173	Cistern N.E. corner of Armenian convent garden ...	2527	17	S	
174	Cistern 100ft. S. of last ...	2520	24	S	
175	Cistern 80ft. S. of last ...	2517	22	S	

No.	Position.	Level above the Mediterranean.	Depth below surf. of ground.	Authority.	Remarks.
176	Corner of *Hârat Deir es Suriân* N. of B.M. 2505·5 ...	2485	25	S	S. side of Mission Hospital.
177	W. end of alley S. of Syrian convent	2492	20	S	
178	S. side of same alley near point 2512	2492	20	S	
179	W. corner of arch in front of synagogue No. 60 (O.S.) ...	2515	20	S	
180	*Hârat el Jawâny*, E. side point 2505	2492	13	S	
181	*Hârat el Armen*, S.W. corner of southern arch	2529	16	S	400ft. N. of S. city wall.
182	Cistern 100ft. N.W. of *Bâb en Neby Dâûd*	2516	11	S	
183	Cistern 50ft. N.W. of last ...	2518	10	S	
184	S. wall of building E. of B.M. 2499·8	2490	10	S	E. of *Hârat Bâb. Neby Dâûd.*
185	*Tarîk Bab en Neby Dâûd*, 50ft. S. of southern arch, W. side	2484	20	S.	
186	At 100ft. S.W. of last ...	2510	20	S.	
	CHRISTIAN QUARTER.				
187	Church of Holy Sepulchre, Tomb of Nicodemus ...	2485	...	C	Possibly higher.
188	Church of Holy Sepulchre, Chapel of Adam	2490	...	C	N.B. Floor of the Calvary Chapel, 2494.
189	Church of Holy Sepulchre, N. of Latin Chapel	2479	...	C	
190	Church of Holy Sepulchre, N.W. corner, S. courtyard	2473	7	S	
191	Church of Holy Sepulchre, in front of Convent of Abraham	2458	18	S	
192	Church of Holy Sepulchre, West door	2495	8	S	Top of ridge.
193	Church of Holy Sepulchre, S.E. corner of courtyard, above Chapel of Helena ...	2480	...	S	Surface.
194	Excavation No. VI. O.S. ...	2470	7	O	Excavated 1864.
195	*Kala't Jalûd* S. side... ...	2580	...	O	Surface.
196	,, city wall, N. of	2576	4	W	Recov. Jer., p. 285.
197	,, 140ft. N. ...	2470	...	O	Average surface.
198	Outside city wall, 700ft. N.E. of *Kala't Jalûd*	2527	...	O	Surface.
199	Corner of *Hârat Istambulîyeh* 250ft. E. of *Kala't Jalûd*, by Convent of St. Basil ...	2567	5	S	
200	N. wall Latin Convent (18 O.S.)	2549	10	S	
201	*Hârat Istambulîych*, foundations of Convent of St. Theodore	2565	...	S	Surface.

No.	Position.	Level above the Mediterranean.	Depth below surf. of ground.	Authority.	Remarks.
202	W. of same street, 80ft. N. of Convent of St. Demetrius	2537	8	S	
203	Latin Patriarchate N.E. angle	2549	...	S	Approximate.
204	Latin Patriachate, 50ft, E. of last	2557	13	S	
205	Latin Patriarchate, W. wall, 100ft. from N. W. angle ...	2534	14	S	Doubtful.
206	Ch. of St. Saviour, under floor	2532	20	S	
207	*Harat el Wariyeh*, 140ft. N.E. of last	2553	3	S	
208	Grounds of Patriarchate, S.E. corner	2553	12	S	
209	At 50ft. N. of B.M. 2563 ...	2553	10	S	
210	100ft. W. of Greek Catholic Convent	2522	20	S	
211	W. side of *Hârat Istambultyeh*, between St. Demetrius and Greek Catholic Convent ...	2525	12	S	
212	Greek Catholic Convent (11 O.S.)	2523	17	S	
213	Pool of the Bath, middle of N. side ...	2512	...	S	Surface.
214	,, ,, W. side ...	2510	9	S	
215	,, ,, S.W. corner	2500	20	S	
216	Mediterranean Hotel, S.W. corner	2494	32	S	
217	German shop, N.W. corner, 70ft. N.W. of last... ...	2494	32	S	
218	100ft. N.W. of W. door H. Sep. Ch.	2500	15	S	
219	N. of Holy Sep. Ch. S.W. of *Khankah*	2479	30	S	
220	*Muristân* N.W. corner 60ft. S. of Minaret *Jâmia' el 'Omary*	2462	54	S	
221	Ch. of St. Mary Magna S.E. corner	2438	31	S	Tomb under wall in rock.
222	Cistern mouth, 120ft. N. of S.E. corner of *Muristân* ...	2426	53	C	
223	Bottom of large cistern S.W. of last	2429	50	S	Visited by Lt. Conder, 1872. Rock stepped and falling E.
224	Corner of Via Dolorosa and *Khan ez Zeit*, B.M. 2464·9	2465	...	C	
225	House W. of German Hospice of St. John	2488	...	S	
226	Corner of *Khôt el Khankah*, and *'Akabet el 'Asafir* ...	2487	...	S	Surface.
227	50ft. N. of entrance to German Hospice	2455	13	S	
228	E. of *'Akabet el 'Asafir*, 40ft. N.E. of No. 226	2484	...	S	Surface.
229	In front of Damascus Hotel...	2437	24	S	
230	N. wall	2453	13	S	

No.	Position.	Level above the Mediterranean.	Depth below surf. of ground.	Authority.	Remarks.
231	W. of last, 70ft. from *Tarîk Bâb el 'Amûd*	2470	15	S	
232	*'Akabet el Batikh*, W. of point 2494	2489	5	S	
233	Between last and Convent of St. John Euthymius, N. of B.M. 2501·8	2497	7	S	
234	Corner opposite St. John Euthymius on north	2486	20	S	
235	N. of Khankah, E. of Deir es Seiyideh, and of Street ...	2477	30	S	
236	Spanish consulate, N. wall...	2487	13	S	
237	E. end of second alley, N. of last at point 2484	2464	20	S	
238	E. end of next alley, N. of last at point 2482	2472	10	S	
239	N. side of same alley ...	2483	8	S	Surface.
240	Jew's House of Industry, B.M. 2490	2482	8	S	
241	E. end of alley opposite No. 238	2480	12	S	
242	Open ground near city wall, 50ft. N.W. of point 2501...	2483	18	S	
243	150ft. S. of last, in street, 100ft. N, of B.M. 2502·1 west of point 2499... ...	2494	5	S	
244	W. side of winding street 80ft. N.E. of last	2487	15	S	
245	Corner of House 100ft. W. of B.M. 2517·2, which is on corner N.W. of Greek Convent of St. Catherine ...	2517	12	S	

OUTSIDE THE CITY.

246	240ft. E. of S.E. angle of Haram (bed of the Kedron Valley)	2171	38·5	W	Recov. Jer., p. 97. The rock was traced 175ft. W.
247	Golden gate 133ft. E. of S. side of gate, rock rising W. 1 in 4	2312	30	W	Recov. Jer., p. 154.
248	Cœnaculum, N. end of court-yard	2504	15	S	
249	,, middle S. wall...	2479	30	S	
250	,, at cross roads, 50ft. W. ...	2495	25	S	
251	Rock tower foundation under Protestant School on Sion	2483	...	C	Scarp is 36ft. high, 9ft. above passage.
252	Rock platform W. of last ...	2447	31	C	
253	Scarp S.E. of tower (top) ...	2485	...	C	Average.
254	Outside school washhouse on E.	2472	...	C	Surface.

No.	Position.	Level above the Mediterranean.	Depth below surf. of ground.	Authority.	Remarks.
255	Back of shoemaker's shop, N. of last	2467	42	C	For these observations, 250—259, see Lt. Conder's plan of this scarp.
256	N. end of scarp, N. of tower	2480	...	C	10ft. above surface in cemetery.
257	Tower in S.E. corner Protestant cemetery (top of scarp)	2480	...	C	
258	Bottom of same scarp ...	2435	35	C	
259	Scarp running N.E. from last	2500	...	O	Surface.
260	Cistern opposite last on S.E.	2480	...	O	Surface.
261	Rock 400ft. S.W. of No. 250	2380	...	O	Surface.
262	,, 400ft. S. of last ...	2350	...	O	Surface.
263	Scarp 200ft. W. of Pool of Siloam (top)	2200	...	O	Surface.
264	Scarp 300ft. E. of pool ...	2160	...	O	Surface.
265	Scarp 500ft. N. of Aceldama	2180	...	O	Surface.

CLAUDE R. CONDER, LIEUT., R.E.
Nov. 1st, 1879.

NOTES ON COLONEL WILSON'S PAPER ON THE MASONRY OF THE HARAM WALL.

I. *Dressing of the Drafted Masonry.*

The peculiar dressing of the Haram masonry—which is not mentioned in Colonel Wilson's paper—seems to be worthy of notice. The eight-toothed chisel described by Colonel Warren (Recov. Jer. p. 138) was used in two directions at right angles, making a regular criss-cross pattern. This dressing has been found at the south-east angle in the courses near the base of the wall, and it has also been specially noted, 1st, on the stones of the Master Course; 2nd, on those at the Wailing Place; 3rd, at the south-west angle; 4th, on the voussoirs of the Tyropœon bridge. This dressing distinguishes the finished masonry of the Haram from other drafted masonry of later date. The stones in the wall east of the Holy Sepulchre, for instance—supposed by Du Vogüé to be part of the *propylæa* of Constantine's great Basilica—are finished almost as finely as the Haram stones, but have no criss-cross dressing. The inferior Byzantine drafted masonry (as for instance in Justinian's Church on Gerizim) is dressed with a toothed chisel used in various directions, but the regular criss-cross pattern of the Haram work is never found on it.

On the supposition contained in Colonel Wilson's paper this dressing would have been first used by Nehemiah, and four centuries later by Herod, and again six centuries later by Justinian, a result which it seems difficult to adopt without hesitation. As far as our information yet goes it appears that the method of dressing masonry is as a rule very

distinctive of the period to which the masonry belongs. Possibly, then, all the stones with criss-cross dressing may belong to one period

The present arch of the Tyropœon bridge seems, as Colonel Wilson points out, plainly attributable to the time of Herod the Great, and the voussoirs, as above said, are all dressed criss-cross, like the stones round them. I would suggest that it is possible that the more ancient masonry of the Temple Area was removed by Herod, who "took away the old foundations" (Ant. xv 11. 3) and built the cloisters "from the foundation," (Wars i. 21. 1).

II. *Dressing of the Byzantine Masonry.*

The large plain masonry which stands immediately above the drafted stones is found in many parts of the Haram occurring in connection with round arches having this special characteristic, that the keystones are very narrow and that the voussoirs graduate in width to the haunches where the proportions are more cubical. The size, shape, and dressing of these stones, together with this peculiarity of the arches, are architectural features which occur throughout Palestine in the interiors of Byzantine convents between the fourth and seventh centuries. In earlier Roman work the voussoirs are of even width, as in the aqueducts at Cæsarea; and the style of building described seems distinctive of Byzantine period. For this reason it would appear that Wilson's Arch, which consists of voussoirs so graduated, cannot probably date earlier than the Byzantine period. The same kind of vaulting occurs in the passages from the Double and Triple gates in the roofs of Cisterns Nos. 1 and 3, and in the passage from the Prophet's Gate. The walls and vaults (where not of later construction) in the Twin Pools present the same peculiarities in the proportions and finish of the stones and in the vaulting. The dressing is with a toothed chisel used irregularly, and the finish is generally coarse and uneven when compared with the Crusading work, which is distinguished by careful tooling, small stones, and masons' marks.

III. *North-West Angle.*

The general conclusions of Colonel Wilson's paper confirm those advocated in my paper on the Haram read to the Royal Institute of British Architects (Transactions, 1879, No. 1, p. 27). The discrepancy in the level of the aqueduct under the scarp, as given by Mr. Schick, may be due to the fall in the channel from north to south. It does not appear where the level 2,412 was taken, but the following was that which I obtained in 1873:—

Level of Haram at window	2431
Height of Aqueduct, 6 feet 6 inches From roof to Haram floor, 18 feet 6 inches } . .	25
Level of the bottom of the Aqueduct channel west of the window	2406

The rock at this point is 3 feet higher (2409), the channel being 3 feet deep.

The level 2429 is not that of the window, but of the floor of the chamber outside the Haram wall, in which I discovered the buttresses shown in my sketch (*P. E. F. Quarterly*, 1877, p. 136). The level of the sill of the old window is the same as that of the Haram inside—*i.e.*, 2,431, according to the Ordnance Survey.

The reason why the scarp found running from the window westwards to the aqueduct could not be traced farther west is that the upper part of the aqueduct consists of a masonry wall and arch which could not at the time be broken through. It should also be observed that close to the point where the aqueduct is intersected by the Haram wall there are two large tanks on the interior (Nos. 18 and 22).

The level of the aqueduct is 2406, that of the bottom of Tank No. 18 is 2391. Thus the aqueduct might probably have entered the tank 15 feet above the bottom. The total depth of the tank is 34 feet 6 inches.

The height of the scarp at the window is 25 feet above the exterior, and 3 feet above the interior of the Haram.

IV. *North Wall of the Haram.*

It should be noted that some of the stones of the south wall of the Birket Israîl have fallen out, and that a second row of similar masonry, with wide joints packed in a similar manner, is visible behind. Taking this in conjunction with the fact that the vaults inside this wall are not earlier than the twelfth century, it seems highly improbable that any drafted masonry like that of the other walls of the Haram exists here.

V. *East Wall.*

The level of the highest course of rough drafted stones is 2346, which appears to be that of the rock just north of the Golden Gate, at about 1,090 feet from the south-east angle. The rough masonry would probably not extend farther south, judging from the similar case on the south wall.

It should be noted also that the line of the ancient rock scarp found by Colonel Warren to form the north wall of the platform on which stands the Dome of the Rock would strike, if produced eastwards, the same point, 1090 feet from the south-east angle. These two indications perhaps point to an ancient corner as existing near the Golden Gate.

The suggestion that the city wall did not extend farther north than the present north-east angle of the Haram seems open to the objection that the north-east portion would in this case run nearly at the bottom of a valley, and that it would be entirely commanded from the hill (Bezetha) on the north side of the valley. The disappearance of the ancient masonry farther north seems, as in other parts north of the city, to be due to the fact that the rock is at no great distance below the surface, and that there is no great accumulation of rubbish on this side of Jerusalem.

It appears that the foundations of almost the whole of the third wall must have been dug up and reused in building the later walls, which have been renewed seven times since the great siege, and now consist to a great extent of ancient materials. The rock scarp at the north-east

angle of the modern city runs in line with the east wall of the Haram, and turns north at the top of the hill. I would suggest that it represents the original line of the third wall on this side, as previously proposed by Colonel Warren and other authorities.

VI. *South-East Angle.*

Whatever be the reason for the straight joint on the east wall of the Haram, there seem to be objections to the supposition of a tower unconnected with the western part of the south wall which are worthy of consideration.

1st. Josephus states that the Ophel wall joined the east cloister of Herod's Temple (Wars, v. 4. 2), just as the wall discovered by Colonel Warren on Ophel joins the east wall of the Haram. Josephus makes no reference to any large tower at this point, and the supposed dimensions of 108 feet side would represent a tower considerably larger than the largest of the three Royal Towers which the historian describes so minutely.

2nd. Although the inner side of the ancient masonry of the east and south walls is visible in the great vaults at the south-east angle, no remains of the north and west walls of the supposed tower can be seen in them. The substructures extend 200 feet either way along the walls, so that the foundations of the tower ought, if they still existed, to be visible within them.

3rd. There are no remains of any ancient corner at the Triple Gate, or of any wall like that of the Haram running northwards from that entrance.

In the absence of a complete examination of the foundations of the south wall the best indication obtained seems to be that afforded by the Master Course. Colonel Wilson appears to follow Mr. J. Fergusson in attributing this course, which is visible between the Single and Triple Gates, and appears to connect the south-east corner with the rest of the south wall, to Justinian. Against such a view it may be urged that at the south-east angle this course, standing on twenty-seven courses of drafted stones, and apparently *in situ*, has seven courses of the same masonry above it; that the dressing of the stones in the Master Course is the same as that of the other courses of drafted masonry; that it is not a dressing used in any building of the Byzantine period as yet found, but occurs on the Herodian masonry of the south-west angle of the Haram. Immediately west of the Single Gate, the level of the bottom of the Master Course is about 6 inches above the surface, and another course of drafted stones is then visible beneath.

I would suggest that the undrafted masonry which occurs on all the walls of the Haram in connection with details of architecture plainly Byzantine is attributable to Justinian, and that it is impossible to separate the Master Course from the other courses of drafted masonry with which it is identical in character and dressing.

The tabular statement (page 64) of the levels of courses E and H might perhaps give rise to an impression that a break must occur in the

line of the beds of these courses between the Triple Gate and the south-east angle. The difference of 1 foot 6 inches is, however, apparently due to the fact that the courses were here not built quite horizontally, as Colonel Wilson so clearly explains in speaking of the great course (p. 55).

It is worthy of remark that all the dimensions of the Haram—angular, horizontal, or vertical—are apparently so rude as to suggest very imperfect means of mensuration. The same rudeness of measurement characterises even the finest specimens of the Jewish tombs.

VII. *Identifications.*

Some of the identifications proposed in Colonel Wilson's paper appear to be open to further consideration. He supposes that the expression used by Josephus (Ant. xv. 11. 5) as to the first gate on the west refers to the viaduct over the pool *el Burak*. The late date of this viaduct has, however, been already indicated. Josephus, speaking of four western gates, says: "The first led to the king's palace, and went to the passage over the intermediate valley" (Ant. xv. 11, 5). He again mentions "the passage to the upper city" above the Xystus, where was Agrippa's palace (Wars, ii. 16, 3), which seems probably the same place. In this case the first gate led out by the Tyropœon Bridge, but in no case could it have well led to Wilson's Arch, which is intermediate between the two gates or passages (Tanks Nos. 19 and 30), and would therefore, had the viaduct then existed, have occurred second or third in the enumeration of the gates.

It is not clear why Colonel Wilson supposes the bridge broken down during Pompey's siege to have been of wood. Josephus does not say so, and the bridge in question may possibly be recognised through the older voussoir lying beneath the pavement of the Tyropœon bridge (Ant. xiv. 4. 2; Wars i. 7. 2).

The suggestion of the existence of the original wall of Solomon's Temple east of the Cistern No. 19 (see *Quarterly Statement*, Jan., 1880, p. 20) is also, apparently, merely a speculation, as there is no literary evidence as to the line occupied by the west wall of Solomon's Temple, nor are any remains of an older rampart known to exist within the present Haram walls.

The identification of the aqueduct west of the Temple enclosure with that constructed by Hezekiah is in the same way hardly satisfactory.

According to the A. V., Hezekiah's Conduit was on the west side of the City of David, which Josephus identifies with the Upper City of his own time (cf. 2 Sam. v. 7-9; Ant. vii. 3. 1; Wars v. 4, 1). According to Keil and other scholars the Hebrew words should be rendered, "westwards to the city of David." Neither rendering would admit of an identification with the aqueduct just mentioned, which is east of the upper city, and which runs north and south. The great rock-cut tunnel running westward from the Virgin's Spring seems more probably the work of Hezekiah, for the Gihon, or "fountain head," whence it brought water, was in the *Nakhal*, or valley, a title which

seems to be invariably applied to the Kedron Valley (2 Chron. xxxii. 30) where the Virgin's Spring wells up.

The identification of the supposed tower at the south-east angle of the Haram is also open to remark.

The "tower that lieth out" (the "projecting tower") was on Ophel, between the Water Gate and the Horse Gate (Neh. iii. 26-28). The Horse Gate, by common consent of various authorities, has been placed south of the Temple. It was *at a corner*, and apparently close to the Royal Palace of Solomon (Neh. iii. 28; Jer. xxxi. 40). The Water Gate may probably be placed near the great shaft discovered by Colonel Warren leading down to the Virgin's Spring, and the Horse Gate at the angle of the Ophel wall south of the Haram. Between these two points Colonel Warren discovered the great outlying tower which he identifies with that mentioned in the Book of Nehemiah as the "tower that lieth out." The supposed tower at the south-east angle of the Haram would seem to be too far north to be identified with the "tower that projected," and moreover it was according to its proposed reconstruction almost flush with the wall, and projecting inwards instead of outwards.

Nothing short of a complete examination of the Haram walls by galleries extending their whole length would suffice to prove definitely the continuity of their structure, and even if such proof were obtained the objection might be raised that the masonry was not *in situ*. However puzzling the minor differences in the masonry may be, and however difficult it may be to explain the reasons for straight joints or sudden changes in the finish of the stones, certain important indications will be acknowledged as controlling any conjectures on the subject.

1st. The dressing of the finished stones on the west, south, and east walls is the same, and serves to distinguish the Haram drafted masonry as a whole from drafted ashlar of the Byzantine period.

2nd. The existence of the north-west rock scarp; of the Tyropœon bridge; and of the Ophel wall joining the east wall of the Haram, corresponds in a most marked manner with the description of the rock of Antonia; the bridge leading to the Royal cloister; and the ancient wall joining the east cloister of Herod's Temple; and affords strong indications of the identity of the three angles of the modern Haram with the corresponding angles of Herod's Temple enclosure.

3rd. The alterations effected in the Temple Area by Herod the Great were so considerable that any theory based on a reconstruction of the site as described in the time of Solomon or Nehemiah must be considered unsatisfactory if it is not in accordance with the descriptions of the site as existing at the later period of the Herodian edifice. It should not be forgotten that between the time of Solomon and that of Herod, a period of time elapsed equal to that separating the reigns of Alfred the Great and Victoria.

VIII. *Plans.*

The plans are of great value as preserving drawings previously

unpublished. They appear, however, not to have been finally checked by Colonel Wilson, owing probably to his absence abroad.

In No. 1 (page 6) a certain number of the observations which I obtained from Mr. Schick are inserted, but this plan is not complete. In addition to the observations outside the east wall of the Haram, which are beyond the margin, several have been omitted, viz., those bearing the numbers 2, 3, 12, 14, 15, 19, 20, 21, 22, 36, 39, 40, 41, 47, 49, 50, 53, 56, 57, 58, 60, 86, 88 in the Register. The observation No. 56 is also given 2287 instead of 2289; and No. 55 appears as 2400 instead of 2409. These omissions do not affect the contours, but observation No. 20 is given as 2420 instead of 2408 (Warren), which materially alters the contours. The observation 2370 west of Wilson's Arch does not agree with contours. It is not in the Register.

The contours appear to be taken from the unpublished plan sent home in 1873 from Jerusalem. The name "Convent of the Sisters of Sion" has been written by mistake to the Barracks farther south.

It does not appear why an area is shaded in the south-west angle of the Haram, while the north-east angle, where no observations have been taken, is not shaded. It should be noted that negative observations have been made in tanks Nos. 19 and 30, and in all the chambers in the south-west part of the platform of the Dome of the Rock, which serve to control the contours in the shaded portion. The question of the lie of the rock in this part of the Haram is, however, fortunately, of very little practical importance, as it is known to be nowhere higher than 30 feet below the level of the Sakhrah rock.

In Plan 6A *B'aidha* should be written *Beidha* ("white") according to the Arabic of Dr. Sandretzky. There is no *Ain* in the word.

On Plan 9 the level of the aqueduct at its south end should, as above explained, be given as 2406 instead of 2412. At the point B, the aqueduct should also be shown as cut in rock on both sides, as the plan gives the impression of a rock buttress which does not exist.

It is to be regretted that the valuable sections of the east wall have not been published, and an elevation of the Antonia scarp seems also much wanted, which I hope to be able to supply from a sketch made in 1873.

January, 1880. CLAUDE R. CONDER, Lieut. R.E.

[The contour map was taken from the plan sent home by Lieut. Conder, dated July 29, 1873. It was inserted without instructions from Colonel Wilson, in order to show approximately the lie of the ground. The name of Lieut. Conder ought to have been affixed to the plan, which is due to him, and for which he is responsible. It must, however, be understood that its appearance in the *Quarterly Statement* does not mean that these contours have been adopted by Colonel Wilson. The reason for shading the south-west corner will be apparent by comparing Colonel Wilson's with Colonel Warren's lie of rock in Plate 6. Lieut. Conder, in his plan of 1873, differs from both. The observation 2370 west of Wilson's Arch appears on Lieut. Conder's plan, if not on the Register. —ED.]

LENGTH OF THE CUBIT.

In the *Quarterly Statement* for October, 1879 (p. 181), Mr. S. Beswick raises this interesting question, and advocates a length of 17·7 inches, which is very close to the length 17·4 inches proposed in an article on Jerusalem in the *Edinburgh Review*, 1873. The paper is, however, open to some objections, which may be briefly stated.

The Tyropœon Bridge.—The existing arch is 50 feet broad, and measures 38 feet 9 inches from the south-west corner of the Haram. The accord between this and the dimensions of the Royal Cloister of Herod's Temple is striking, but Mr. Beswick omits all consideration of the thickness of the Haram wall, which is at least 8 feet when measured at the north-west corner, and assumes that Josephus was thinking of 17·7-inch cubits, and translated them into feet. As regards the diameter of the pillars of the Royal Cloister, they may, no doubt, be assumed at about 6 feet, which is about the diameter of the existing monolith at the Double Gate. The measurements of the Cloister will then be—

Josephus's Measurement.

Wall (thickness)	8 feet	38 feet.
South Walk of Cloister	30 feet	
Pillar (diameter)	6 feet	52 feet.
Central Cloister	45 feet	
Pillar (diameter)	6 feet	
Total	90 feet.	

Actual Measurement.

From south-west corner to south side of Bridge	38 feet 9 inches.
Breadth of Bridge	50 feet.
Total	88 feet 9 inches.

This is as near as we can go without actually knowing the diameter of the pillars, which could hardly be spanned by three men (Ant. xv. 11. 5). If we reduce the diameter to 5 feet 6 inches, the result will agree with actual measurement within 3 inches. This question has, however, no bearing on the length of the cubit.

Length and Width of El Aksa.—The attempt to deduce the length of the cubit from the fifteenth century Arabic MS. is unfortunately based on a very grave error. The word which the translator renders "cubit" is the Arabic *dhr'a*, a very well known measure, equal to the Turkish pic, and as nearly as possible 2 feet 3 inches in length. The measurements given are those of the *Masjid el Aksa*, which, as is well known, was the old Arab name for the whole enclosure now called *Haram esh Sherîf*. The Arab writer gives the breadth along the north wall as 455 *dhr'a*, which is just the length of the north wall of the Haram,

1,042 feet. The length, 784 *dhr'a*, which he gives, is equally close to the length of the west Haram wall, 1,601 feet.

The measurements of the Masjid given in the same century by Mejr ed Din (Hist. Jerusalem, chap. xx.) are equally exact. He makes the length of the east wall from *Bab el Asbât* to the *Mihrab Dâûd* (south-east corner) to be 669 common architectural *dhr'a*, which agrees with the length of the present east wall, 1,530 feet. The width he gives is a mean measure from the outside of the wall at the *Bab er Rahmeh* (Golden Gate) to the opposite cloisters. This he states at 406 *dhr'a*, agreeing very closely with the actual measurement of 970 feet.

Mejr ed Din adds, "Should any one else find it one or two *dhr'a* more or less, it must be put down to the difficulty of measuring. I measured it twice myself before I obtained the true measure" (chap. xx. sec. 20).

Mejr ed Din also gives the size of the *Jami'a el Aksa*, or mosque, on the south Haram wall. He makes it 100 *dhr'a* long by 77 *dhr'a* wide. The measurements are exact, without including the porch outside on the north, the *dhr'a* being 2·3 feet.

These measurements are of value as showing that the area of the Haram was the same in the fifteenth century as it now is, and that Mejr ed Din, who took the mean width, was aware that the area was not rectangular. Mr. Beswick, however, misled by the very loose translation "cubit," has endeavoured to apply the measure to a 17·7-inch cubit. This question also has, therefore, no bearing at all on that of the length of the Hebrew *ameh*.

The Digit.—Mr. Beswick enters upon a very difficult question, for there are two elements of incertitude in the matter. 1st. Whether the Jews were accustomed to great exactitude in measurement, such as we now require, or whether their measures were rude and inexact, like those of the modern Arabs and ancient Egyptians. 2nd. Because the exact application of the Hebrew terms rendered "digit," "hand-breadth," &c., has never been minutely described by any ancient author.

Two standard examples of the small and medium *ameh* are said in the Mishna to have been preserved at the Gate Shushan, which was due east of the Holy House. This gate, though known to Mejr ed Din, has not yet been rediscovered. When it is, let us hope the standard measures (Kelim xvii. 9) will also be found.

The Jews had at least three measures called *ameh*. The smallest, of five handbreadths, measured the vessels of the Temple; the medium, of six handbreadths, measured its buildings (Tal. Jer. Menakhoth 97a). The medium cubit consisted of two spans (*zit*).

It must not be forgotten, in dealing with this matter, that the Jews were not a tall people, and that their hands were probably as delicate as those of the present Jews and Arabs. We may therefore take the measures of an English gentleman's hand as not being less than those of a Jewish hand.

Taking, therefore, the cubit of forty-eight barleycorns (Maimonides,

Sepher Torah ix. 9), and the barleycorn as equal to our English long-measure barleycorn—as results from actual measurements of barleycorns in Syria made in 1872—we obtain 16 inches for the medium cubit, and the span is consequently 8 inches, which is the extreme distance which can be stretched from the thumb to the small finger of an ordinary hand. A hand spanning 9 inches is a large one.

The *zereth*, rendered "handbreadth," will in this case be 5·33 inches, which is the ordinary span of the four fingers. As to the smaller divisions, there is great difficulty in ascertaining how the measurements are to be made, and the determination of the larger ones, *sit* and *zereth*, is of course more conclusive in the matter. The details will be found in the new Handbook to the Bible just issued by Messrs. Longmans, page 79. As regards verification from monumental remains, I have already pointed out that in the Synagogue of Umm el 'Amed the pillars are ten cubits high, with bases of one cubit and capitals of half a cubit, the cubit being taken as sixteen inches.

The satisfactory determination of the levels of the Temple Courts from the same hypothesis has also been explained in "Tent Work in Palestine" (vol. i. p. 359).

In the Haram itself there are several other similar indications. Thus, at the north-west corner of the Area, the chamber which I explored in 1873 shows piers projecting from the wall at an interval of 8 feet 8 inches, with a face of 4 feet 8 inches, giving a total of 13 feet 4 inches as the distance from centre to centre of the piers. Ten cubits of sixteen inches is equal to 13 feet 4 inches, giving an interval of ten cubits for the piers from centre to centre, while the piers are three and a half cubits broad.

The average height of a course of masonry in the Haram walls is 3 feet 4 inches, or two and a half cubits of sixteen inches. The lintel of the Single Gate is eighty-two inches high, which is within two inches of five cubits. The master course on the south wall is 6 feet in height, or four and a half cubits of the sixteen-inch dimensions. Three consecutive stones in the second course of the east wall, as measured by Colonel Warren, are respectively seven cubits, three and a half cubits, and four and a half cubits in length. Colonel Warren has remarked that the dimensions of the Haram masonry are generally multiples of the English foot. The explanation is perhaps to be found in the relation of 4 to 3 between the foot and the cubit.

It may be that this accumulation of coincidental indications is not conclusive, but at least no such evidence has been collected in favour of a longer dimension for the cubit.

The *ameh* was the length of the fore-arm to the first joint of the fingers. It requires a long arm to make this equal to eighteen inches.

C. R. C.

NOTES ON JERUSALEM.

In the *Quarterly Statement* for October, 1879, Mr. Birch advocates th prosecution of further excavations in Jerusalem as soon as funds will allow. Whether the present administration of the country offers greater advantages than of former years is only known to residents, though the reports which reach us are far from encouraging. I beg, however, to offer a few suggestions, which may be possibly of service.

Tombs of the Kings.—While agreeing with many of the general results of Mr. Birch's papers—papers which have, I think, done service to the cause of Jerusalem topography—I would point out that there were *two Tombs of the Kings* in Jerusalem. The sepulchres in which the nine most famous monarchs were entombed were in the "City of David," and according to the Talmud, within the walls of the town. But there was also a Royal Garden, or "field of burial of the kings," in which Uzziah, Manasseh, and Amon were buried, which seems to have been a distinct place. This second cemetery is mentioned in connection with the Royal Palace, which stood south of the Temple, and it seems probably to be the tomb of the House of David on Ophel, which is placed by Nehemiah near Siloam, as mentioned by Mr. Birch. Near to Siloam, also, the King's Garden (the Garden of Uzzah) and the King's Winepresses were to be found, the recess between Ophel and the upper city being apparently a royal domain.

The tombs of the nine famous kings were in the City of David, but their position is not clearly indicated. I do not think that the view that Ophel was the City of David—which, though often put forward, has never been accepted by the great authorities Reland, Robinson, &c. —will be found capable of proof, for Josephus (Wars v. 4. 1) distinctly identifies the "citadel," or *Metzad Zion*, which was called the "City of David," with the Upper Market of his own time, the *Suk ha 'Alium* of the Talmud. Millo or Akra was also in the City of David, but the Ophel wall west of Gihon (*'Ain Umm ed Deraj*) is distinctly stated to have been without the City of David.

It remains, then, to look for these tombs on *Millo*, a site not among the nine enumerated by Mr. Birch, as proposed by various authorities.

The ground in which the present Church of the Holy Sepulchre stands is now known to be the summit of a kind of knoll, which slopes steeply down on every side, and is divided from the modern Zion by the deep, broad valley which, from the twefth century down, has been generally recognised as the Tyropœon. This northern knoll or hill is the site, according to Robinson and the majority of authorities, of the Akra of Josephus, and Akra, according to the Septuagint, was Millo, and Millo was in the City of David.

Now, immediately east of the so-called Holy Sepulchre is an ancient Jewish tomb with *kokim*—the only undisputed specimen of a Jewish tomb within the walls of modern Jerusalem, and a tomb which,

as placed on Akra or Millo, would have been within the circuit of the ancient city also.

This tomb, minutely described by Colonel Wilson in a former number of the *Quarterly Statement*, and now called the Tomb of Nicodemus, I would propose to identify with the long-lost tombs of the nine famous kings of Judah. Any one who studies Colonel Wilson's plan will see that the tomb had originally nine *kokim*, or graves for nine bodies, and it is yet more remarkable that some of these are sunk below the level of the chamber floor, reminding us of the expression of Josephus, that the sepulchres were underground, and could not be seen even by those who stood within the monument.

The reasons, briefly recapitulated, for this identification, are—

1st. The tomb is undoubtedly ancient and Jewish.

2nd. It is in the City of David.

3rd. It is within the probable circuit of the old walls.

4th. It contains graves for nine bodies, according to the number of kings enumerated in the Bible.

5th. Some of these graves are concealed beneath the floor.

6th. It is the only undoubted Jewish tomb in Jerusalem.

If the Holy Sepulchre were really an ancient tomb, we might identify it with the tomb of Huldah, the only other sepulchre within the walls, according to the Talmud.

Those who are interested in this question will find it fully worked out, with all the references, which time does not allow of my now giving, in "Conder's Handbook to the Bible," just published by Messrs. Longmans, page 341.

The Stone hat T'aim.—I would suggest a few notes on the interesting paper by Prof. Sepp.

It is evident that the stone in question was in a high part of the city, or itself elevated to some height, from the following passage:—

"The showers came down abundantly until all Israel went up from Jerusalem to the Mount of Olives because of the rains. They came and said to him (Honi), 'As thou hast prayed that the rains may fall, so pray that they may cease.' He said to them, 'Go and see if the Stone of Proclamation (Eben hat T'aim) be covered.'"—*Taanith* iii. 8.

It is curious to see the same differences of opinion arising in the nineteenth century which can be traced in the fourth and twelfth in the conflicting accounts of various writers, and which are due to the brevity of the Gospel narrative. It must, however, be pointed out that Herr von Alten, though condemned by Prof. Sepp, is correct in stating that the Temple guards occupied Antonia, as the fact is expressly stated by Josephus (Wars v. 5. 8).

Prof. Sepp seems also to have fallen into a misconception in supposing that the footprint of Christ, mentioned by Antony of Piacenza, was in the Dome of the Rock. Such a footprint was indeed shown in the same building in the twelfth century, probably the present *Kadam en Neby*, or "Footprint of the Prophet." But Canon Williams

has shown that Antony of Piacenza refers to a place in the present Mosque el Aksa, which is still called *Kadam Aisa*, or the "Footprint of Jesus." The point may have no practical value except as an instance of "transference of tradition" by the Crusaders—one of many.

Prof. Sepp appears also to confound the place where the Jewish Sanhedrin sat with the Prætorium of the Roman Governor. With regard to the site of the former, it is distinctly stated in the Mishna that the Beth Din, or Smaller Sanhedrin, sat in the chamber Gazith ("cut stone"), also called Balutin ("pavement"), which was at the south-east corner of the Court of the Priests. To this, of course, the Roman Governor can never have had access. As to whether the place Lithostroton, or Gabbatha, was in Antonia or on Zion, the writers of fourteen centuries have been constantly of different opinion, there being nothing in the Gospel narrative to fix the site. C. R. C.

THE GOLDEN CALF AT BETHEL.

Any theory stalking through these pages is for the time a Goliath deliberately inviting an attack. Josephus is like Saul's armour, too clumsy to be used with effect. I wish (*Idem non vitrei culminis immemor*) to sling a few smooth stones.

The Samaritans indulge in most extravagant pretensions; they assert that Gerizim is the scene of Abraham's sacrifice of Isaac. "The Land and the Book" disposes of the claim at once by a reminder that no ordinary Syrian ass would be cajoled into performing nearly a four days' journey in two days and a part. The distance from Beer-sheba to Gerizim is too great, while that to Jerusalem suits the narrative very well. The minor objections against Mount Moriah, named in "Sinai and Palestine," (251)—viz., that "there is no elevation, nothing corresponding to the place *afar off* to which Abraham *lifted up* his eyes," vanish when it is pointed out that—

(1) There was a *far off* place (lit. *house* ? Araunah's) on the west side of the brook Kidron, not half a mile from Jerusalem (2 Sam. xv. 17). Miriam also watched the ark *afar off* (Exod. ii. 4). A few hundred yards would suffice."

(2) The expression "*lifted up* his eyes" hardly requires the existence of an *elevation* in Gen. xxii. 13, which is not admissible in *both* cases in Gen. xxiv. 63, 64, and contrary to fact in Numb. xxiv. 2.

The soul of Simon Magus must have migrated into the dark-eyed and fascinating Jacob, now high priest of the Samaritans, and "custos rotulorum," for Lieut. Conder, after seeing him, was actually inveigled into seriously advocating the claim that the Bethel where Jeroboam set up a golden calf was immediately west of Gerizim, at the ruins called Lôzeh (Luz).

Seven points in favour of the claim are given in *Quarterly Statement*, 1878, p. 28, and condensed in "Tent Work," vol. ii. 107; but not one of the seven appears to me able to stand scrutiny.

The fact that some declare that these pages instead of dispelling uncertainty only throw them into a fog, leads me to drop a stone on this claim, and to answer the points *seriatim*.

(1) If Amos vii. 13 indicates that "the calf was close to the king's palace," then it was not close to Shechem, but to Samaria or Jezreel, since Jeroboam II., not I., is referred to.

(2) Abijah, on taking (the true) Bethel from Jeroboam, would hardly be driven by his conscience to destroy "the calf temple," since he permitted worse things in his own kingdom (2 Chron. xiv. 3, 5).

(3) The southern (or true) Bethel, though allotted to Benjamin, was from the first seized by Ephraim (Judges i. 25), and is reckoned to it in 1 Chron. vii. 28, and therefore it is not "strange that it was chosen as a religious centre" by Jeroboam, being not "beyond the bounds of his own kingdom."

(4) "The prophet that came out of *Samaria*" (2 Kings xxiii. 18) died long before the city of Samaria was built. The word is obviously used proleptically either of the kingdom of Israel or of the district described as *the cities of Samaria* (1 Kings xiii. 32; 2 Kings xvii. 26). Further, Samaria is mentioned (Amos iv. 1, 4; v. 5, 6) in connection not only with Bethel, but also with Gilgal and Beer-sheba. Are the two latter places, therefore, to be looked for close to Samaria (? Shechem)?

(5) "The Samaritans in *Shechem* having been plagued with lions," &c. *Shechem* is here introduced inadvertently, not being mentioned in 2 Kings xvii. The colonists were placed in *the cities of Samaria—i.e.*, the cities of the captive tribes.

(6) Surely not more than *one Luz* was likely to have had the alternative name of Bethel.

(7) (The true) "Bethel was the seat of a school of prophets." But still the children of the city mocked Elisha, an act quite consistent with the worship of the calf.

(*a*) Dan *was* "consecrated by the memories of Jewish history" (Judges xviii. 30).

(*b*) Bethel, as shown in (3), *was within* "the bounds of Jeroboam's kingdom" when the calves were set up.

Scrutiny thus shows that *the seven notes* are invalid and unable to disturb the common opinion that one golden calf was set up at Jacob's Bethel (Beitîn), possibly within sight of Solomon's Temple.

W. F. Birch.

THE NAMELESS CITY.

[See *Quarterly Statement*, 1879, p. 130, 171.]

I have not yet learnt as a *fact* that the Mount of Olives is visible from some spot on the Bakoosh hill below the summit.* That it really is so I

* The Survey Triangulation diagram shows that the neighbourhood of Jerusalem is visible from the top of the Râs Sherifeh, but it is hidden lower down by the intervening ridges.—C. R. C. But see Finn, pp. 445, 449.—W. F. B.

feel certain; but as the point is essential to showing satisfactorily that the nameless city was on the Bakoosh hill, it seems desirable to secure all the voussoirs before beginning to build the arch. Accordingly the proof promised will be kept back for the next number.

Still, as Lieut. Conder has raised objections, they shall have immediate attention. He suggests Bethlehem as an alternative position. Establishing an *alibi* will best disestablish all rival sites, so that to this reply is deferred. His other objections, however, must be met at once, as they directly controvert point (3)—viz., that "*the hill* (*Gibeah*) *of God* (1 Sam. x. 5, 10) is the place of the Upper City of Jerusalem (Gabbatha, John xix. 13)." He urges—

(1) "The name Gibeah is nowhere connected with Jerusalem." In reply it is enough to quote Isa. x. 32: "The mount (of) the daughter of Zion, *the hill* (Gibeah) *of Jerusalem*." Here the earlier words represent the eastern hill, the italicised words the south-west hill, the site of the Upper City.

(2) "Jerusalem was at that time held by the Jebusites, whereas the *hill of God* was a garrison of the Philistines." This is the common (and I think *erroneous*) opinion; for I consider it demonstrated (in *Quarterly Statement*, 1878, page 182) that the stronghold of Jebus, *i.e.*, the city of David, was on Ophel, so called.

Therefore it was *quite open to the Philistines*, who had a garrison in Geba, *to put one also on the south-west hill* (*Gibeah*) *of Jerusalem*, even even if it partly belonged to the city occupied in common by the Israelites and Jebusites.

The statement of Josephus (Ant. vii. 3. 1) that "David took the lower city *by force*" now seems to me one of his frequent misapprehensions of the Bible.

(3) "Gabbatha . . . . applies to the Court of Antonia." I did not mean to connect Gabbatha philologically, but *topographically* with the *Gibeah* of Jerusalem. Hebrew scholars must decide the former question; as to the latter, Lewin seems to me to prove conclusively that Pilate's palace was not Antonia, but Herod's palace, in the Upper City, where Florus (Jos. Wars ii. 14. 9), before his tribunal, crucified Jews of the highest rank, on the very spot (I believe) where some of them had years before raised to Pilate the cry against Jesus, "Crucify Him!"

I gladly accept the correction that the cairn is named Rujm el Kabtân (Captain's Cairn), the Arabic equivalent for "Conder's Cairn," which originally stood in the proof and was at the last moment altered to "Salami's Cairn."

Though Lieut. Conder reports that he did not find any traces of antiquity among the ruins on Râs Sherifeh (identical, I assume, with Dahar es Salâhh), I am not persuaded that Mr. Finn was mistaken about what he did see.

Seventeen years in Palestine must have taught him something about ruins, and his words ("Byeways in Palestine," 442) are these: "On the mountain top is a *large oval space*, which has been *walled round*; frag-

ments of the enclosure are easily traceable, as also some *broken columns*, grey and weather-beaten. This has every appearance of having been one of the many sun-temples devoted to Baal by early Syrians.*

By temple I mean a succession of open-air courts, with a central altar for sacrifice; a mound actually exists on the highest spot of elevation, which may well have been the site of the altar."

The italicised words seem to me to indicate an antiquity greater than that of a *modern hamlet*. Indeed I shall be greatly surprised if *a great cistern* is not to be found hereabouts, described in 1 Sam. xix. 22 as "a great well in Sechu." A comparison of the different versions, Arabic, Syriac, &c., leads me to think that *Sechu* has been substituted for *Shefi*, = *a bare place on a hill*, and in "Tent Work," vol. i. 279, the position is said to be "a bare and rocky hill." W. F. Birch.

THE ROCK OF RIMMON OR THE POMEGRANATE.

Mr. Rawnsley's recovery of the name *Rimmon* in Wady er *Rummân*, and of the tradition that the vast cavern Mugharet el Jai holds *six hundred* men, makes the Benjamites' actual place of refuge to coincide with the obvious position in a way seldom attained in disputed questions of topography.

A further test of the correctness of the identification is afforded in the points proposed for consideration by Lieut. Conder in *Quarterly Statement*, 1879, page 170. In reply to—

1 and 6, Migron is allowed to mean *a precipice*. The difficulty about *two* Migrons, one north, the other south of Wady Suweinit, seems to me to vanish if we take the word to mean the wall of rock forming the north and south boundary of the passage of Michmash (see *Quarterly Statement*, 1877, page 55). That Saul was on the south side of the gorge, opposite to the Philistines, seems clear from 1 Sam. xiv. 6, "Let us *go over*, &c.," and *id.* 17, "See who is gone from us." Therefore the pomegranate-tree, which is *in* (so A. V. rightly, not *by*; see below, 2) Migron, cannot be "a tree in Ramah," if Lieut. Conder means us by Ramah to understand er Ram, distant nearly three miles to the west. Further the latter is literally "*the tamarisk*" (1 Sam. xxii. 6), and so could not be a pomegranate-tree.

2. It is true the Biblical narrative says nothing about a cave, but a little reflection shows that such a shelter would be desirable (not to say necessary) during a four months' stay in the hold, and *large* caves were frequently used as places of refuge (1 Sam. xxii. 1; xxiv. 3).

Lieut. Conder objects on principle to great caverns, such as that at Khureitun (called also Mugharet M'asa = cave of refuge), and

* The circular depression mentioned by Mr. Finn I have seen, but do not consider it very ancient. It looks like an old lime-kiln. The place is fully described in the Memoir to Sheet XVII. of the Survey. The columns intended seem to be the Roman milestones close by.—C. R. C.

says that they are "never inhabited in Palestine" ("Tent Work," ii. 159). Mr. Rawnsley, however, was informed that *the cave* near Rimmon "had been used time out of mind for refuge by the neighbouring villagers when persecuted by the government."

Mr. Drake (*Quarterly Statement*, 1874, p. 26) reported that the so-called (and, in my opinion, *true*) cave of Adullam is "dry and airy, and admirably adapted for an outlaw's hold." The *little caves* at Aid el Mieh do not at all satisfy the Biblical requirements for the famous cave of Adullam, which was *one*, and necessarily large, and a real *hold*.

If there had been no cave "*in* the Rock Rimmon," the rendering "in" might have been misleading, but "in" is the *commonest* meaning of the Hebrew "Bi," though it also means "by or near." The quotation is wrong in Judges xx. 47, "*unto* the rock is "Al;" "*in* the rock" is "Bi," as in xxi. 13.

(3) Naarath was certainly *not* the border town of *Benjamin* and *Ephraim*, since it was on the *northern*, not southern, boundary of Ephraim, as Mr. Kerr showed in *Quarterly Statement*, 1877, p. 44. His line for the northern boundary of Benjamin seems to me to be drawn *correctly* up "the ravine on the north of Jebel Kŭrŭntel," and it gives Remmoon to Ephraim. Of course with this line Taiyibeh cannot be Ophra (Josh. xviii. 23), an identification which strains the order of the places named in that passage. The same error has crept into "the Handbook," and the conclusions drawn from it are consequently wrong.

(4) "The Rock Rimmoon was apparently not far from Shiloh (Judges xxi. 12, ? 13), which is an argument in favour of the northern site." I fail to see this in the words, "They sent . . . to the children of Benjamin . . . in the rock Rimmon." Of two places, four or five miles apart, how is it thus implied that they sent to the nearer one?

(5) The sting of course in the tail. If *Sela* necessarily means a *precipice* (see Lieut. Conder in "Tent Work," II. 91, "A narrow but deep chasm, impassable except by a detour of many miles . . . 'Cliff (sela) of Division' . . . *cliffs*, such as are to be inferred from the word Sela") then Beit Atab cannot be the rock (Sela) Etam as proposed by the same writer. The two points cannot both be held together, and so Lieut. Conder *rightly* abandons one, but retains, I think, the *wrong* one.

The meaning of the Hebrew *Sela* is not to be settled by its *general* (N.B., *not universal*) *modern* use, but by *Biblical comparison*. The standard of measurement for *Sela* seems to be Petra (ha-Sela, *the* cliff) with its well-known precipices (Sinai and Pal. 499). "The shadow of a great *rock*" (Isa. xxxii. 2). This must mean a rock more or less perpendicular. "A sharp rock" (lit., tooth of a *Sela*) surely means in 1 Sam. xiv. 4 a cliff, so precipitous that Jonathan had to "climb up upon his hands, and upon his knees." These passages, as well as those previously quoted, seem sufficient to show that *Sela* is only applied to a rock when it is *precipitous*. Height alone does not entitle to the name.

W. F. B.

GEBIM.

Is once mentioned in the Bible, in Isa. x. 31, "The inhabitants of Gebim gather themselves to flee." It seems to have been visible from and east of Geba (*Quarterly Statement*, 1877, 56; 1879, 103).

The name apparently survives in Gobâ (Captain Warren's letter, 29), otherwise called El Kuba' or Kub'a (1879, 125, 127). It is not far from the cave of the six hundred Benjamites, to which place the men of Gebim doubtless carried off their worldly goods on the invasion of Sennacherib. Genesius says the full idea of the words above is, "they hurry off to conceal their treasures;" and where, if not in their great cave? One of the traditions collected by the Rev. H. B. Rawnsley seems to me to refer to this period, viz. (1), "That the Christians used it a long while ago, when God sent an evil wind to destroy them."

Time, I venture to think, has substituted *Christians* for *Jews*, and *them* for the *Assyrians*. The legend hardly disguises the sudden destruction of Sennacherib's great host, foretold in the words, "I will *send a blast upon him*" (2 Kings xix. 7). It is probable, therefore, that the cave (Mugharet el Jai) again did good service to Benjamin in Hezekiah's time, and that the feet of the inhabitants of Gebim helped in ages past to polish the descent to Ain Suweinit (*Quarterly Statement*, 1879, p. 123).

I find that twelve years ago Captain Warren obtained a trace of this spring, since he says (Letters, 19), "The wady which runs from Beitin between Mukmas and Jeba is first called Towahin, and . . . . becomes W. Shiban, then W. *Ain*, Suweinit, and then W. Farah."

M. Ganneau also appears to have recovered a name indicating that W. Suweinit was used as a place of refuge, when he states (Letter, June, 1879) that "the wady running from the west to the east, immediately north of Jeba, is called Wady *el Meysa*." This word seems to me to represent in Arabic the Hebrew word Mahseh, translated "*refuge*" in Ps. civ. 18, "The rocks (lit. Selas = cliffs) are a *refuge* for the conies." The same name curiously clings to the traditional and *true* cave of Adullam, now called not only Mugharet Khureitún, but also M. el M'asa (Drake and Conder); M. el Misa (Ganneau). The wady below bears, I believe, also the same name.

W. F. B.

THE PLACE CALLED BETHSO.

"But if we go the other way westward (first wall), it began at the same place (Tower Hippicus) and extended through a place called Bethso to the Gate of the Essenes."—Josephus, Wars v. 4. 2.

Dr. Robinson, in his Bib. Researches, has a note in relation to this plece called Bethso which needs correction, as other eminent critics have adopted his opinion. He says: "Bethso, which Josephus does not translate, seems to be the Hebrew *Bethzoah*, dung-place, and not im-

properly marks the spot where the filth of this part of the city was thrown down from Zion into the valley below. From this circumstance the adjacent gate might naturally receive the synonymous name Dung Gate."

Mr. W. F. Birch has adopted the same opinion, for he says: "The *Dung Gate*, near south-west corner of the Upper City. Here apparently was 'the place called Bethso' (= dung-place)."—*Quarterly Statement*, Oct., 1879, p. 178.

I have seen the same identification assumed several times in the same periodical by different writers; and it has crept its way into some standard works on Jerusalem topography.

It is much more likely that Bethso comes from *Beth-tzo*, "Interdicted Place," or a place from which persons are prohibited and excluded, such as we may very naturally suppose the military parade-grounds of the Three Royal Towers to have been, lying along the fortifications of the west wall from Hippicus to the Tower and Gate of the Essenes. The Hebrew word *Beth-tzo* means a place over which persons are forbidden to pass or trespass. It was doubtless the royal parade-grounds for the soldiers in the Three Royal Towers, which were located on this spot.

In the form *Beth-tzoh* it literally means the House of the Commander. And the title of commander, which is used only once in the Bible, is *tzoh* in the original (Isaiah lv. 4). In this form it would mean the Commander-in-Chief. But the name, in all probability, was not applied to the house, but to the district, grounds, or surroundings of his place of residence, and be in the form *Beth-tzo*=the interdicted and forbidden place.

Whenever a positive command, injunction, or precept—in the form of a forbiddance, prohibition, ordinance, or interdiction—is given in the Bible, this word has the form of *tzo*, as in Isa. xxviii. 10, 13, where it reads, "precept upon precept, precept upon precept." The word is invariably used for the Ten Commandments, or Interdictions and Precepts (Exod. xx. 6; xxiv. 12; xxxiv. 4, 32, 34; Deut. iv. 13; v. 31; x. 14; xi. 12). Dr. Robinson's explanation of the word, and its derivation, almost forces a smile. Its identification as the site of the *Dung-gate* is equally as absurd. We cannot for a moment suppose that the *Dung-gate* would be located on the highest point of Zion, and in the very neighbourhood of the royal towers, gardens, and palace. S. BESWICK.

Canada, Oct., 1879.

EPIPHANIUS ON GOLGOTHA.

Having lit upon the following passage in Epiphanius on Heresies, treating of the locality of Golgotha, I thought it would be interesting to the friends of the Palestine Exploration Fund to present it to them:—

"Wherefore he may wonder who learns, as I have by books, that our Lord Jesus Christ was crucified in Golgotha, in the very spot where the body of Adam was laid. For after leaving Paradise, and dwelling opposite it a long while, he at length left it, and having died in this spot—Jerusalem, I mean—there he was buried in Golgotha. Whence, it is probable, that the place took its name, being translated, 'the place of a skull,' while the outline of the place bears no resemblance to a skull. For neither is it situated on any height, so that it should be called a skull, answering to the place of the head in the body, nor is it a place of outlook; for neither is it situated on an elevation beyond other places For opposite it is the Mount of Olives, which is higher, and Gabaon, eight miles farther on, is also loftier. Moreover the height which once existed on Mount Zion, but has now been scarped, is also loftier than that spot.

"Whence then has it derived its name—'the Skull'? Because the skull of Adam, the first created man, was found there, and his mortal remains were laid there, therefore the spot was called 'the Place of a Skull.'"—Epiph. i. iii., Hær. xlvi. cap. 5.

R. Govett.

THE COLONISATION OF PALESTINE.

We are indebted to the courtesy of the editor of the *Jewish Chronicle* for permission to reproduce the following letters on a subject in which many of the subscribers to the Palestine Exploration Fund are deeply interested. It may be remarked that some very important communications have lately appeared in the pages of this paper on the present condition of the Jews in Constantinople, Russia, and Syria, together with articles, letters, and notes on the future of the Holy Land:—

"Sir,—'The Jews Regaining their Land' is the title of a paragraph going the round of the papers, to the effect that 'owing to the Jewish immigration the population of Palestine has more than doubled during the past ten years.' As a resident of this country since 1867, I can positively deny this statement. Many Jews, it is true, have come to live in Jerusalem, not in other places, or rather to lay their bones in the valley of Jehoshaphat, during the past decade; but it is utter folly to declare that 'the population of Palestine had been doubled' by such immigration. The population of Palestine was reckoned at 1,200,000 ten years ago, and to maintain that it has doubled would give us an influx of 1,200,000 Jews. The truth is that about 5,000 Jews have come to this land during the past ten years, and this fact is the origin of much exaggeration. Of these a large number have died, but others may have taken their places, leaving the number about the same. Nearly all live in poverty, and make appeals from time to time to their wealthy

brethren in Europe and America for means to maintain themselves and their families. The immigration is virtually a pauper influx, who expect to live in idleness upon the hard-earned savings of their coreligionists abroad. Some are eventually disgusted at the penury which the rabbis' strict rule often enforces, and return to the countries whence they came. A few weeks ago I helped a poor American Jew to return to New York, and the United States Consul at Jerusalem has given assistance to many. A number of new houses have, indeed, been built outside the walls of Jerusalem by both Jews and Christians, following the example of the Russian and Protestant missions, which first began to do so. These houses, being built over cisterns of rain water, are for the most part nests of typhus and malarial fever, and, instead of contributing to the health of the city, have materially added to the prevalent insalubriousness of Jerusalem. In the city itself the soil is so saturated with the impurities of past generations that any disturbance of the ground for building purposes invariably engenders malignant fevers. Captain Warren, R.E. and his corps of assistants, while making explorations and excavations in and about Jerusalem, suffered terribly from this cause. The scarcity of pure water is another source of evil at the Holy City, and although an abundant supply could be brought from the ancient Pools of Solomon, yet all efforts to repair or rebuild the aqueduct are thwarted by the fanaticism of the Moslem rulers.

"The land of Palestine is extremely productive, and were colonies planted here as they are in Australia, New Zealand, and the United States, there is no reason to doubt their success. The Rev. James Neil, B.A., formerly incumbent of Christ Church, Jerusalem, gives the following reasons why farming should be profitable in Palestine:—1. Labour is extremely cheap. The wages of ordinary labourers are—men, 5s. to 6s. a week; women, 3s.; boys and girls, 2s. These are considred good wages, and are amply sufficient to enable them to live. 2. The plough is extremely light. A man can carry it on his shoulders, and walk miles with it to his home. Two diminutive oxen, or one mule, are amply sufficient to draw it. 3. There is no expenditure whatever for manure. No artificial manure or any requiring carting is ever employed. That deposited by the beasts as they graze over the fields, and the ashes of whatever stubble is afterwards left to burn appear to be all the manure the rich Syrian arable lands have ever needed or received. 4. Horses, asses, oxen, and farm stock generally are very cheap. Horses cost from £3 to £10; mules, £12 to £15; camels, £8 to £20; asses, from £3 to £6; oxen, from £6 to £15; full-grown sheep, from 2s. to 8s.; and goats still less. 5. The keep of animals is very trifling. Their food consists chiefly of barley and chopped straw. Four horses can be kept at an annual cost of £30. For oxen very rich oil cake is abundant, but for the most part of the year they live and work on little else beside chopped straw. This is explained by the fact that animals, like their masters, require only the lightest and simplest food in a hot country. 6. Harvest can be gathered in without injury from wet. Rain is never known at

harvest time. The weather in May is warm and dry, and remains so until the next October. 7. There is no need of stacking the crops. All the sheaves are carried on the backs of camels or asses to an open floor, some smooth rock surface, in the middle of the fields, and are threshed, winnowed, &c., in the open air at leisure in the course of three or four months of uniformly hot weather, during which no rain falls. 8. No farm buildings of any kind are required, except the roughest and simplest cattle sheds, and no hedges, ditches, walls, or enclosures of any kind around the fields. The only storehouses needed are underground cisterns. These are alluded to in Jer. xli. 8. The lands are virtually undrained, and one farm or one field marked off from another only by large rough stones placed here and there along the boundary line. 9. The total amount of taxes is only a tithe of each year's produce. 10. The great fertility of ordinary arable lands. The heavy lands in some parts yield a hundredfold—at Siloam, for instance, and to the south of Gaza, in the region where it still retains the character it bore when 'Isaac sowed in the land, and received a hundredfold' (Gen. xxvi. 12). 11. The still geater fertility of irrigated lands. These yield four crops a year, and bear the combined products of England and Italy. 12. The immense productiveness of fruit trees. The olive, vine, fig, apricot, and mulberry tree in the high lands are excellent examples of the wealth that must have once been derived from this source. The vine, which is carelessly left to train along the ground, seems in some instances, as in the neighbourhood of Hebron, to turn into one huge mass of white grapes. In the hot plains oranges of very many kinds, lemon, citron, and banana, yield most abundantly.

"I can corroborate from personal observation the truth of the foregoing description, and believe that a European immigration on a large scale would be a valuable means of regenerating Palestine. A judicious outlay of capital in planting orange orchards and vineyards would yield a return in three years' time. Farming is lucrative; and native labourers must be employed when long exposure to the direct rays of the sun is required, but Europeans can readily oversee their labourres without suffering from the summer sun. The autumn and winter and spring months are charming; the summer heat can be diminished by building houses, as I have done, with verandahs and venetian blinds, and placing doors and windows opposite each other to facilitate cool ventilation.—I am, &c., "JOHN B. HAY, late United States Consul General.

"Jaffa, November 6, 1879.

"P.S. Since writing the foregoing I have seen the 56th annual report for 1878 of the Berlin Society for Promoting Christianity among the Jews. The population of Jerusalem is given as 7,000 Mahometans, 5,000 Christians, and 13,500 Jews. There were 8,000 or 10,000 Jews in Jerusalem ten years ago, and the increase of about 5,000 corroborates the statement of my letter as above."

To the Editor of the "Jewish Chronicle."

"Sir,—To Mr. John B. Hay's interesting letter I am enabled to add the following from the same pen. 'The German settlements at Jaffa, Mount Carmel, and Jerusalem are successful as far as they go. They are, however, possessed of very limited capital, and confine themselves chiefly to trades; their colonies can scarcely be called agricultural. The success which has attended their cultivation of the vine at Carmel, their soap factory, tannery, and brewery, show that European energy avails much in spite of all obstacles. Religious views induced them to come to Palestine, and they make no aggressive attempts to evangelise the natives, holding that example is better than precept, and thus they will become a power for good in the land. They have a school and hospital at Jaffa, and own thirty-six houses, and a steam flour mill, also threshing machines, a large number of carts and waggons, and improved agricultural implements. Their spring waggons ply regularly between Jerusalem and Jaffa, conveying passengers. At Jerusalem they own about five acres and thirteen dwelling-houses. At Mount Carmel they possess sixty-eight dwellings and many vineyards. Leather and soap have been considerably manufactured by the Carmel colony and even exported. The importing firm of Duisberg, Breish, and Co., of Jaffa, have been successful in introducing Marseilles tiles for roofing, and dealing extensively in Asia Minor and Austrian timber, besides supplying Palestine with European, and chiefly German, commodities and manufactures. In view of these facts, it is reasonable to surmise that Anglo-Saxon energy and enterprise, aided by judicious outlay of capital, would accomplish as much, and even greater things, in Palestine.'

"Would that religious views could induce some of our millionaires to expend a few pounds out of their millions on practical undertakings such as the above." "Yours obediently,

"December 1st, 1879." "H. GUEDALLA."

To the Editor of the "Jewish Chronicle."

"Sir,—In conversation, at Constantinople, with Mr. Lawrence Oliphant, that gentleman was kind enough to confide to me, for publication in your columns, the hitherto unpublished details of a scheme which he has been maturing for a long time past, which is known only to a select few. His scheme has received the (unofficial) approbation of Lords Beaconsfield and Salisbury, and that of several of our co-religionists. So far Mr. Oliphant has been delayed by changes of Government and by political crises, but the approximate probability that the Sultan will see his way towards encouraging an enterprise which can only redound to his credit, by securing him a large share of public sympathy all over the world, which will tend to dissipate the growing impression that he is opposed to all reforms, even when they in no way interfere with his sovereign rights, and are attended with no political danger, has induced Mr. Oliphant to break the silence which he has

hitherto preserved, and to give me the following outline of his plan, fuller details of which will appear in the introduction to his forthcoming book of travels in Palestine. There can be no doubt but that the Sultan's firman will shortly be given to a scheme, which can only be a source of profit to his Government in its great financial extremity, and of strength to his empire at large.

"Every scheme in which the welfare of the Jews is involved, which emanates from external sources, is, not unnaturally, regarded by our coreligionists with suspicion. I may as well, at once, state that Mr. Oliphant is actuated by no kind of religious feeling in the matter. Anxious to discover a means by which the Sultan might show that prosperity is possible under his rule, he has, after mature deliberation, hit upon the colonisation of Palestine by the Jews—a people composed of varied nationalities—as the only possible solution of his problem which should not offend political prejudices. Whether the success of his scheme may not prove to be the corner-stone, thus fortuitously laid, of the great restoration which we all hope for, it would be premature to judge. In any case, Mr. Oliphant was good enough to read to me the complete rules for the government of his projected colony, as well as the whole of the introduction to the book, before alluded to, and anything more matured, clearer, or more intelligent, it has rarely been my lot to listen to. Such details as Mr. Oliphant allows me to lay before your readers are given, as nearly as memory will permit, in his own words.

"'A great opportunity,' Mr. Oliphant said, 'is now being afforded to the Sultan of manifesting the sincerity of his desire to introduce reforms into one of the Asiatic provinces of his empire, which stands in much need of it. I have submitted a scheme to the Turkish Government for the colonisation of the fertile and unoccupied tract of land lying to the east of the Jordan, now sparsely inhabited by tribes of nomad Arabs. This tract, which I myself have visited and examined, consists of the land of Gideon and of the northern portion of the Plains of Moab, which formed the former heritage of the tribes of Gad and Reuben. This country is far superior in productive capacity to the territory on the west of the Jordan, the mountains of Gilead rising to a height of upwards of 4,000 feet above the level of the sea, and being heavily timbered, well watered, and susceptible in the highest degree of agricultural development. They can scarcely be said to be inhabited, the plains in the south forming a lofty plateau about 2,500 feet above the sea-level, consisting of rich arable land, cultivated, in patches, by the Arabs; but, with the exception of the town of Es Salt, there is no resident population, nor landowners. The whole tract belongs to the Government, which, omitting only a small sheep-tax levied on the Arabs, derives no revenue from it. The entire region proposed for colonisation comprises an area of about a million and a half acres, which should become the property of an Ottoman company, through whose agency, in conjunction with the Turkish authorities, it should be administered. The advantages to the Turkish Government of the

proposed scheme are as follows. It would bring into cultivation a rich tract of country, at present unproductive. It would be a reform involving no expense to the Porte, but, on the contrary, be the means of providing it with an immediate sum of money to be derived from the sale of the lands. It would prove to Europe that the Jews found greater facilities for toleration and protection in Turkey than in some Christian countries. It would in no way interfere with the sovereign rights of the Porte, as the administration would be under the auspices of an Ottoman 'Compagnie Anonyme," and the colonists would become Ottoman subjects, while good government would be guaranteed to them by special regulations having the Imperial sanction. It is proposed to constitute the district set apart for colonisation into a separate *Sarjak* (province). The emigrants would not be exclusively Jewish, but an asylum would be afforded to many Muslim refugee families from Bulgaria and Roumelia, who have proved by the character of their farms, which they have been obliged to abandon, that they are excellent farm-labourers. The *fellaheen* would also flock over to be employed from Western Palestine, where they are in a state of extreme poverty. It is not intended, in the first instance, to utilise Jewish labour on the soil, but it is anticipated that out of the 200,000 Jews in Asiatic Turkey (to say nothing of the millions in Europe) enough men of more or less capital could be found to become landlords. As an investment, farming in Palestine, when properly conducted, is most remunerative. The colony could be connected by rail with the port of Haifa, by way of the Valley of the Jordan, which has a good incline the whole way, presenting no engineering difficulties.'

"It will at once be seen that Mr. Oliphant has hit upon the only present practicable plan of colonisation by the Jews. In their present condition of insufficient acclimatisation, they would only be capable of directing the economical labour of the *fellaheen*. Later on, practice and custom might make them agriculturalists *per se*. But when the whole of Mr. Oliphant's regulations come to be known, they will be seen to be replete with correct appreciation, and to be eminently practical in their character.

"The Sultan would clearly be conferring a great favour upon the Jewish race, for which they would be very grateful, in granting a concession of this nature. All they need is some kind of guarantee for protection and good government. They would, in all probability, respond to his invitation, and they would do their utmost to prove, by making their colony a success, that his generosity was not thrown away; and they would make it into a model of a peaceful and prosperous province, which might be imitated elsewhere, and be the beginning of a system which should extend throughout Asia Minor, and strengthen and consolidate the empire. The difficulty of dealing with the Arabs will not be found (Mr. Oliphant who has visited the district and dwelt amongst them says) to be as great as it would appear. The present comparative security which reigns there proves the beneficial results of the presence of a few troops.

"The fact that the Jews, as a race, are interested in the success of the project divests it of a British character. It is essentially of an unpolitical character in its bearings, and, inasmuch as the Jews are not struggling to acquire an independent national existence, it can be accompanied by no danger to the integrity of the Turkish Empire. Mr. Oliphant greatly hopes that when his proposed company is brought out, our co-religionists will show, by the liberality of their support, that they are not dead to all efforts which tend to secure some occupation by them of the land of their fathers, without involving any question of immediately charitable support of the occupants.

"Yours obediently,

"Odessa, December 21st, 1879." "SYDNEY M. SAMUEL."

To the Editor of the "Jewish Chronicle."

"Sir,—Having read with much interest the account which appears in your columns of Mr. Oliphant's scheme for the Colonisation of Palestine, I should be glad to be allowed to contribute a few facts connected with the question.

"The character of the district selected for Colonisation, also gives good reason to hope for success. The plateau of Mount Gilead, elevated 2,500 feet above the Mediterranean, is always considered to surpass Western Palestine in the healthiness of its climate. Well supplied with water and with a rich arable soil, it also possesses considerable forests of oak trees towards the north, while a sub-tropical climate, giving facilities for the cultivation of almost every kind of fruit and vegetable, exists on the lower slopes above the Jordan. The country, though now entirely deserted, proved, as we know, once so attractive as to be preferred by some of the tribes of Israel to the Promised Land itself, and it is covered with the ruins of cities which continued to flourish even as late as the fourth century of the Christian Era. The ruins of Gadara, Gerasa, Heshbon, Madeba, &c., surpass in importance any remains existing West of Jordan.

"The district is bounded on the north by the plains of Hauran and Bashan, which are inhabited by the Druses. The corn of this northern district is of remarkably fine quality, and there seems no reason why crops equally magnificent should not be produced on Mount Gilead.

"The details of Mr. Oliphant's scheme will, no doubt, show that the undertaking is founded on principles as safe as that which is laid down in your correspondent's letter, one which I have already had the opportunity of noticing in your columns—the employment of the native population under Jewish landlords. I may however be, perhaps, permitted to point out one or two of the principal difficulties which are likely to be encountered, and of the evident dangers to be guarded against.

"In the first place the constitution of a New Sanjak or 'Standard'—a Government whose ruler would be directly responsible to the governor of Syria, Midhat Pasha, should give the opportunity for instituting a reformed system of administration.

"It does not yet appear whether the governor would of necessity be a Turk or (which would appear possible) a member of the Colony, but it is evidently of the greatest importance that the choice of the officials working under him should depend in great measure on the Colonists, and that the laws regulating the levying of the taxes should be modelled on European custom, rather than on the unjust and ruinous practice of the Turkish administration—that the Colonists, in short, should be preserved from the official corruption and licence which are so rapidly reducing the Syrian peasantry west of Jordan to a condition of desperation.

"A difficulty which would not be experienced west of Jordan arises on the east, namely, that of dealing with the Bedawin or nomadic Arabs who roam over the deserted country. The great tribes of the Sukr, the Anezeh, and the Beni Sakhr, have for so long remained undisturbed occupants of the country 'beyond Jordan,' that they are in the habit of affixing their tribe marks to all buildings where treasure is thought to lie hid, a simple indication of their claim to the possession of the country and all its products.

"These warlike tribes will resent and possibly resist the incursion of Colonists. The attempt forcibly to expel them would lead to long feuds and constant guerilla warfare, which would prove very damaging to agricultural prosperity. On the other hand, the Arabs have learned the value of money. It is not beyond the bounds of possibility that many might be induced to settle down as cultivators, while others would become breeders of cattle in pastoral districts. There is plenty of room for the Bedawin farther east, but it must not be forgotten that they are a distinct race from the Fellahîn, a race always nomadic, never agricultural, and claiming a hereditary right to the country which it is proposed to colonise.

"The construction of a railway from the port of Haifa is one of the first requisites for the success of the scheme. The Colonists would find themselves in the first instance almost entirely dependent for supplies on the country nearer the coast. Caravans of camels might no doubt be at first organised to communicate with the interior, but the competition with the country already cultivated would only be possible through the existence of rapid means of communication.

"The railway presents some engineering difficulties connected with the passage of the Jordan valley, but they are comparatively unimportant. From Haifa in 15 miles it would rise gradually only 250 feet. In the next 15 it would fall about 900, following the broad passage down the valley of Jezreel to the Jordan. Thence by the line of the ancient Hieromax river it would ascend 3,000 feet in about 30 miles. The Jordan once crossed branches to Damascus on the north, and along the pilgrim route southwards to Moab would in time be made with the greatest ease. Haifa has long been proposed as a terminus for the Euphrates valley railway, and although the northern line from the Orontes possesses more important advantages, there is no doubt that a railway from Haifa might easily be extended northwards to Aleppo,

and from the main line of communication throughout Syria, north and south by Damascus and Hamah.

"I may perhaps note that, in the opinions of engineers, a light steam tram is considered far better fitted in the first instance for a semi-civilised country than a heavy line requiring greater initial expenditure.

"Heartily wishing success to a scheme which appears to be founded on sound principles, and supported by influential and able men,

"I remain, your obedient servant,

"CLAUDE R. CONDER, Lieut. R.E."

THE EMPIRE OF THE HITTITES.

Reprinted from the Times of January 23rd, 1880.

ONE of the most curious results of modern research has been a belief in the existence of a great and influential Empire in Western Asia, the very existence of which had been forgotten in the days of classical antiquity. Even the name of the people who founded it, the Hittites, was known only from a few stray notices in the Old Testament, and none suspected that it had once been a name of power and terror to the nations of the ancient East. We hear in Genesis of a small and obscure Hittite tribe which inhabited the south of Palestine in Patriarchal times, and whose literary character might perhaps have been guessed from the title Kirjath-Sepher, or "Booktown," given to their capital Debir, west of Hebron. Twice, again, in the Book of Kings is mention made of the "Kings of the Hittites"—once as purchasers of the horses imported from Egypt by the merchants of Solomon (1 Kings, x. 29), and once as the dangerous rivals of the Syrian Monarch (2. Kings, vii. 6). So little, however, was known of their history, so utterly ignored was their existence by Greek and Latin writers, that Professor F. Newman once urged these two references as evidences of the unhistorical character of the passages in which they occur.

But the very statements which Professor Newman believed to damage the truth of the Biblical narrative have been turned into arguments in its favour. The kings of the Hittites not only existed, but were powerful enough to threaten Assyria on the one hand and Egypt on the other, and to carry the arts and culture of the Euphrates to the Euxine and Ægean Seas. The Hittites, called Kheta by the Egyptians and Khatti by the Assyrians, first appear on the monuments of the Egyptian monarch Thothmes III., in the 16th century before the Christian era. Thothmes had reduced the greater part of Western Asia beneath his rule; Nineveh and Babylon paid him tribute, and the Hittites, who occupied the north of Syria, formed part of his empire. It is probable that they had but recently established themselves so far to the south; at all events their place is taken by the inhabitants of Aram-naharaim or Mesopotamia in the wars of Thothmes I., and by the Rotennu or

Semitic Syrians in the wars of Thothmes II. Henceforward for several centuries they are the most formidable antagonists of the Egyptian monarchy.

The two centres of their power were Carchemish on the Euphrates and Kadesh, the "Holy" City, on the Orontes. Amen-em-heb, an officer of Thothmes III., tells us how he had brought spoil and captives from the land of Carchemish and Aleppo, and how, during the siege of Kadesh, he had killed "a mare" sent by the King of Kadesh against the besieging forces, and had led the Egyptians through the breach they eventually made in "the new walls" of the town. The Hittites, too, took their share in the great confederacy which was defeated by Thothmes at the battle of Megiddo—an event which laid the whole of Palestine at the feet of the Egyptian conqueror.

The conquests of Thothmes, however, were not permanent. About two centuries afterwards, his successor, Seti I., was confronted by a formidable league of Syrian and Canaanite tribes, under the leadership of the Hittites. Once more the arms of the Egyptians triumphed, but the triumph was only momentary. Ramses II., the Sesostris of Greek historians, whose accession may be placed about 1400 B.C., found himself attacked in the fourth year of his reign by a wide-reaching confederacy of Asiatic nations, who all owned the supremacy of the Hittite princes of Carchemish and Kadesh. The Hittite monarch had gathered under his flag the tribes of Mesopotamia, of Western Armenia, and of Asia Minor. The story of the struggle has been recorded in a long epic by the contemporary court poet Pentaur. Ramses is there invested with the character and prowess of a divine hero; like the demigods of Homer, the gods fight on his behalf, and the fate of the whole war is made to depend on the might of his single arm. The battle raged round the walls of Kadesh till the Hittites, terrified by the superhuman deeds of the Egyptian monarch, fled precipitately and agreed to terms of peace. Such at least is the account of the epic writer; as a matter of fact, however, the contest was not decided till the 21st year of Ramses, when both sides, wearied out by the varying fortunes of a long war, determined to conclude a treaty. The Hittite text of this treaty was engraved on a silver plate and sent to Ramses by "the Grand-Duke of the Hittites, Kheta-Sira, by the hand of his herald Tartisbu and his herald Rames." The Egyptian translation of the treaty has been preserved, and we learn from it that an offensive and defensive alliance was formed between the rival monarchs, each of whom promised to come to the other's assistance in case or foreign attack, and to deliver up all political offenders or other criminals who may have fled from the one country into the other. The treaty seems to have been observed for about a century, when we find the Hittites and Egyptians again engaged in hostilities. Ramses III. (about 1280 B.C.) led the Egyptians as far as Carchemish itself, and returned home with spoil and prisoners from various Hittite towns. But the Hittites were no longer so powerful as they had been. The central authority had disappeared, and each of the chief cities was ruled

by an independent prince. Kadesh, too, seems to have passed into the hands of the Syrian, Carchemish from henceforth becoming the sole centre of the various Hittite tribes. Situated as it was on the Euphrates, it commanded the high road of commerce and war which led from Babylonia and Assyria into Asia Minor on the one side, and Palestine on the other. Driven back from the south by the rising Semitic kingdoms of Syria, the Hittites were forced to compensate themselves by conquests in the north and west. In the reign of the Assyrian monarch Tiglath-Pileser I. (B.C. 1130), they were still paramount from the Euphrates to Lebanon. They had subdued the Aramean tribes of Syria; Pethor, the home of Balaam, at the junction of the Sajur and the Euphrates, had become a Hittite city, and their sway extended as far as the Euxine. The Colchians and Urumians, who inhabited Western Armenia or Cappadocia, were tributary to the King of Carchemish and furnished him with troops, 4,000 of whom were defeated by the Assyrian invader. But from this time onward the power of the Hittites was on the wane. Threatened by the Arameans on the west and by the Assyrians on the east, they became more and more confined to the territory immediately surrounding Carchemish. The two Assyrian kings, Assur-natsirpal (B.C. 883—858) and his son Shalmaneser II. (B.C. 858—823), overthrew them and their allies, captured their cities, seized Pethor and the ford it commanded, and exacted an enormous tribute of gold, bronze, lead, precious stones and stuffs, and other objects from the wealthy inhabitants of Carchemish. After a respite granted by the temporary weakness of Assyria, the Hittites were once more attacked under Sargon; their last monarch, Pisiris, was defeated and slain (B.C. 717), and Carchemish made the seat of an Assyrian governor. The wars carried on by the Assyrians against Phœnicia soon afterwards caused the stream of trade to be diverted to the old Hittite capital, where merchants from all parts of the world met together. The maneh or maund of Carchemish became a standard of weight and money, and it was not until the fall of Assyria that the decline of the city can be said to have begun. At any rate, it was still considered the key of the countries beyond the Euphrates at the time when the ambition of Pharaoh Necho was overthrown by Nebuchadnezzar. It seems to have been known in Greek times under the name of Hierapolis, the Sacred City of the Asiatic Goddess.

The site of Carchemish was long a hotly-debated question. Circesium was the spot usually selected, but the selection threw the geographical statements of the Assyrian inscriptions into hopeless confusion. M. Maspero next proposed Mumbij, the ancient Bambyce, a little to the east of Aleppo, but this site also, though better agreeing with the *data* of the inscriptions than Circesium, was not entirely satisfactory. The discovery of its real position is due to Mr. Skene, at that time British Consul at Aleppo, and the verification of the discovery was the last achievement of Mr. George Smith, the lamented Assyrian decipherer. On the western bank of the Euphrates, midway between the village of Sajur and Birejik, which now overlooks the ford over the Euphrates

traversed by the caravans, is a huge mound of earth, covering an area as large as that of Bloomsbury, and composed of the crumbling remains of the Hittite capital. The ruined walls and towers which still surround the mound, as well as fragments of masonry and sculpture found upon its surface, had struck Pococke and some others of our older travellers, and the ruins had been supposed to mark the site of Gerrhæ or Europus. We now know that they represent a far richer and more famous city than either of these, and that the relics preserved among them belong to a much more remote age than that of any Greek town. They go by the name of Jerabis, and the excavations which are at present being conducted in them under the direction of Mr. Consul Henderson have already resulted in the discovery of several interesting monuments, two of which may now be seen in the British Museum. A writer in the *Cologne Gazette*, quoted by us in our impression of January 1, says of the most recent excavations:—

"I have seen on the spot the following three monuments:—First, a large square limestone block; upon it is a high relief representing a lion stretched out at length, against which two persons are advancing. Secondly, the lower halves of two great basaltic blocks, representing in high relief the lower halves of three persons. Thirdly, a column-like stone of a similar kind, with an inscription on one side and on the other apparently the figure of a woman. The inscription is perfectly clear, and consists of the pictures of animals, animals' heads, and many other signs or characters which for the present are quite enigmatical. In spite of some similarities with the writing on the often-mentioned stones from Hamath, now preserved in the Stamboul Museum, the above inscription is not all in the same character or language as the latter. At first sight the costumes appear purely Assyrian, but on careful inspection numerous details are discovered which are not at all Assyrian. These monuments will probably soon be floating on rafts down the Euphrates, and then find their way over the sea to the British Museum. Mr. Henderson has broken new ground of the highest antiquity. We wish him every success in his further efforts."

The recovery of Carchemish and the resuscitation of the Hittite Empire have led to results unexpectedly important to the history of Western writing and Western culture. Carchemish was a centre from which the art, the religion, and the civilisation of the East may have been carried through Asia Minor to the Ægean, and thence to Greece. Its inhabitants could further boast of belonging to a race which had achieved what it has been granted to but few to achieve—the invention of a system of writing. They used hieroglyphic characters for this purpose, some of which preserved their primitive pictorial forms, while others ceased to bear more than a faint resemblance to the objects they originally denoted. The characters are always engraved on stone in relief, from which we may infer that the first materials employed for writing were fusible tablets of metal, such as that on which the treaty of peace with the Egyptians was inscribed, or those which must once

have filled the niches observed by M. Renan in the cliffs of Syria. Among the clay impressions of seals inscribed with Egyptian and Phœnician legends which were found by Mr. Layard in the record chamber of Sennacherib's palace were some which bore characters unlike any ever noticed before. For many years these attracted little attention. In 1870, however, certain curiously inscribed stones (one of which had been observed by Burckhardt as far back as 1812) were discovered built into the walls of the bazaar at Hamah, the ancient Hamath, and partially published in the first statement of the Palestine Exploration Society. Squeezes and photographs of them were taken in the following year by Mr. Tyrwhitt Drake, copies of which were published in Burton and Drake's "Unexplored Syria," together with an account of their history and character. Five short inscriptions were altogether brought to light, three of which are practically duplicates. In consequence of the discovery having been made at Hamah, the hieroglyphs of which the inscriptions consist were termed Hamathite, and it was found that they were identical with the mysterious characters on the seal impressions from Nineveh. Subsequently another inscription in the same characters was discovered at Aleppo, while a missionary—Mr. Davis—copied yet another, which was accompanied by a remarkable sculpture, in a wholly different part of Asia, the ancient Lycaonia. It thus became evident that the so-called Hamathite system of writing was not confined to Hamath and its neighbourhood, but must have been carried beyond the confines of Cilicia. This and other facts led to the belief that it was really of Hittite origin, and marked the presence of Hittite influence wherever it was found. The literary character of the Hittites was known from the Egyptian monuments, which, for instance, make mention of a certain "writer of books of the vile Kheta."

The discovery of Carchemish came most opportunely to confirm the belief. On the summit of the mound which covers its remains Mr. Smith noticed a broken statue, resembling in both dress and style of art the figures copied by Mr. Davis on the rocks of Ibreez in Lycaonia, and bearing an inscription in what we may now term Hittite hieroglyphs. Subsequent excavations on the same site have proved beyond question that these curious characters were the peculiar property of the Hittite race. The two monuments sent a few months ago from Jerabis to the British Museum are thickly covered with them, and show that the forms found on the stones of Hamath are later modifications, having somewhat the same relation to the older and more perfect forms of Carchemish that running hand has to printed type. What gives additional interest to these still undeciphered hieroglyphs is the probability that they are the source of the syllabary in the characters of which a large number of Cyprian Greek inscriptions are written as well as the legends on the inscribed objects found by Dr. Schliemann at Troy. This curious Cypriote syllabary, as it is called, must once have been widely used throughout Asia Minor, until superseded by the simpler Phœnician alphabet. The local alphabets of Lycia, Caria, and other districts, however, continued

to use some of the older characters, for which there were no equivalents among the Græco-Phœnician letters.

If the origin of the Cypriote syllabary is to be sought in the hieroglyphs of Carchemish, the presumption arises that Hittite influence must once have extended into Asia Minor. This Mr. Sayce has lately proved to be the case. He has pointed out that certain remarkable sculptures at Eyuk and Boghar Keui (possibly the ancient Pteria), on the Eastern bank of the Halys, are shown by their style, dress, and general characteristics to be of Hittite derivation. What is more, they are accompanied by inscriptions in Hittite characters. The Hittite sculpture discovered by Mr. Davis in Lycaonia has already been noticed, and two more Hittite monuments are now known to exist in the same locality. The silver mines near which they are found were probably the attraction which brought their engravers to the spot. Another Hittite monument was met with by Perrot, forming part of an old fort which commanded the ancient road from Pessinus to Ancyra. But the most remarkable discovery of all still remains to be mentioned. The famous figures sculptured above the roads from Ephesus to Phocæa and from Smyrna to Sardes, which Herodotus (II., 106) believed to represent the Egyptian Sesostris, turn out to be memorials of his enemies, the Hittites. The figures were set up at the place where the two roads met, in a ravine now called Karabel, and the spears they had in their hands served as signposts, the one pointing to Ephesus, the other to Smyrna. One of them has been known for more than forty years; the other, which is the one more particularly described by Herodotus, has been but recently brought to light. Both, however, are equally Hittite, and the inscription which still remains on the first of them is written in Hittite hieroglyphs.

Here, then, we have evidence that the Hittites once made their way as far as the Ægean. We can trace them by the monuments they have left behind to the Black Sea on the one hand, and to Lydia on the other. In moving westward they followed two paths, the northern one along which Crœsus afterwards marched against Cyrus, and the southern one subsequently traversed by Xenophon and the Ten Thousand. Both met in Sardes, and here in the capital of Lydia was the centre from which Hittite influence in the west may have radiated, if it ever did so at all. But of this there can be no doubt. The peculiar art of Asia Minor has long excited the interest and curiosity of archæologists. It is based on the art of Assryia, but has undergone certain changes and modifications which give it a very special form. In the opinion of some its origin has been discovered. They allege that it was introduced by the Hittites, and that the spot where it first took its peculiar shape was the Hittite capital Carchemish. Here Assyrian and Egyptian styles met together, and were modified by the genius of an alien people. The sphinx and solar disk were borrowed from Egypt, almost all else from Nineveh. Perhaps one of the most curious inventions of the Hittite artists was the double-headed eagle, which may be seen among the sculptures of Eyuk and Boghar Keui, and which after becoming the symbol of the Seljuk Sultans is now the crest of two Teutonic Empires.

But the influence of Hittite art was not confined to Asia Minor. It spread from thence to the islands of the Archipelago and to Greece itself. There is much in the art of early Greece, more especially as displayed in objects lately found at Mycenæ and elsewhere, which cannot be derived from a Phœnician source, and it is just this element which resembles the Hittite art of Asia Minor. The old legends which brought Pelops and his riches from the banks of the Pactolus had, after all, a grain of truth at their bottom. The germs of Greek art may have all come from Assyria; but they came by two different paths, partly through the hands of the Phœnicians, partly through those of the Hittites.

What they were in race and language is still unknown, and can only be determined when the excavations at Jerabis have been carried further, and the discovery of more inscriptions has furnished us with means of deciphering them. Mr. Dunbar Heath, indeed, fancies that they spoke an Aramean language, but their proper names as recorded on the monuments of Assyria and Egypt are, as Brugsch Bey has already observed, not Semitic. An inspection of the inscriptions, however, seems to show that they marked the relations of grammar by the aid of suffixes, and beyond this we cannot at present go. It is possible that, like the dialect of the mysterious cuneiform inscriptions of Van, the language they spoke belonged to a family of speech now represented by Georgian. In the words of an eminent Egyptian scholar, "future discoveries will afford convincing proofs" that this Empire, "in the highest antiquity, was of an importance which we can now only guess at."

ERRATA—"QUARTERLY STATEMENT," 1879.

P. 128, line 26, *for* "haroob" *read* "karoobah."
P. ,, ,, 39, *after* "fixes" *read* "in."
P. ,, ,, 41, *for* "risk" *read* "the risk."
P. 129, ,, 36, *for* "best" *read* "first."